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City Government

A monthly Magazine devoted to
the practical Affairs of Municipalities.

OCTOBER, 1896.

FEATURES:

Philadelphia's Gas Plant.

A comprehensive review of the experience of the city in owning and operating a gas plant.

Mayors on Franchises.

Mayors Wurster of Brooklyn, Taggart of Indianapolis, Doran of St. Paul, McGuire of Syracuse, Ochs of Chattanooga and MacVicar of Des Moines, express their views on the franchise question.

The Great Boston Subway.

Full particulars about the immense work of placing Boston street cars underground.

City Government of Brooklyn.

Showing how municipal business is handled in the City of Churches; with portraits of city officials and other illustrations.

Birmingham's Intercepting Sewer.

The engineer in charge tells about this important improvement.

Work of Libraries.

Anna R. Weeks writes about the grand work of American free public libraries.

American Society of Municipal Improvements

The coming convention of an organization calculated to do much good for American municipalities.

Cycle Ordinance of Paris.

How cyclists are ruled on the public highways of the French capital.

Mayors of Ohio.

A group of portraits.

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IC IMPROVEMENTS.	PURELY PERSONAL.

OCTOBER, 1896.



12 ARCH AT ENTRANCE TO PROSPECT PARK, BROOKLYN.

City of St. Louis.

Mayor's Office.

St. Louis, Aug. 13, 1896.

City Government,

New York, N. Y.

Gentlemen:

I have received your sample copy of "City Government."

I have not had time to examine it as much as it deserves, but the general make-up of the paper commends itself, not only to dwellers in cities, but to all patriotic Americans. The problem of city government is one of the most difficult the Republic has to handle. I have no doubt the good sense of our people will solve this problem and in the meantime judicious agitation will assist greatly.

Wishing you success in your new enterprise, I am,

Very truly yours,

C. P. WALBRIDGE,

Mayor.

CITY GOVERNMENT.

(Entered as Second-Class Matter at the New York, N. Y., Post Office, August 12, 1896.)

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\$3 A YEAR.

AMERICAN SOCIETY OF MUNICIPAL IMPROVEMENTS.

A meeting of great importance not only to city officials, but to taxpayers generally, will be held in Chicago for three days beginning Wednesday, October 14th. This will be the third annual convention of the American Society of Municipal Improvements. The objects of this society, as set forth in its constitution, are "to disseminate information and experience upon and to promote the best methods to be employed in the management of municipal departments and in the construction of muni-

personally interest themselves in the work. The many errors and mistakes in promoting different kinds and classes of public improvements can be avoided by getting at the experience of older cities, and for that reason no council should hesitate to send representatives to a gathering of this kind. The society has a number of standing committees, all of whom have been for some time preparing reports for the Chicago convention. There will be fifteen to twenty papers upon the subject of street pavements, street cleaning, electric lighting, garbage collection and destruction, etc., and I am satisfied that the dis-



13 GEO. H. BENZENBERG, PRESIDENT.



14 JOHN L. KENNEDY, TREASURER.

cipal works, by means of annual conventions, the reading and discussion of papers upon municipal improvements, and by social and friendly intercourse at such conventions, and to circulate among its members, by means of an annual publication, the information thus obtained."

The convention of this society last year was held at Cincinnati and was largely attended by officials from cities in all parts of the country. The papers read at that convention, and the discussions on the same, have been productive of much good. Regarding the coming convention at Chicago, George H. Benzenberg, president of the society, writes to City Government as follows:

"There is so much benefit to be derived by the various cities at such a convention that it seems as though no argument would be necessary to induce public officials to

cussion upon these topics will bring out a great deal of valuable information on the experiences of different cities."

In Chicago the headquarters of the society will be at the Great Northern Hotel and the sessions will be held in the hall at Kinsley's, on Adams street. The present officers of the society are: President, George H. Benzenberg, city engineer and president board of public works, Milwaukee; vice-presidents, August Herrmann, president board of administration, Cincinnati, Wm. D. Kerr, commissioner of health, Chicago, and James E. McGann, board of public works, New Haven; secretary, D. L. Fulton, superintendent highways and sewers, Allegheny; treasurer, John L. Kennedy, board of public works, Nashville.



15 MAYORS OF OHIO MUNICIPALITIES.

PHILADELPHIA'S GAS PLANT.

HOW IT HAS BEEN OWNED AND PROFITABLY OPERATED BY THE MUNICIPALITY FOR MANY YEARS.

It has been less than a decade since Philadelphia was relieved of what was perhaps the closest and most corrupt "ring" that ever disgraced an American municipality. The officially constituted gas trust which held the city by the throat for a half century, piling up a debt of scandal and corruption which at last led to a reform of the whole municipal government under a new legislative charter adopted in 1887, has been characterized as "the most powerful political corporation that ever dominated and corrupted municipal government in America." Bryce, in his "American Commonwealth," devoted several chapters to the Philadelphia gas trust, and held it up as one of the most glaring examples of the prostitution of official power.

While nominally free from the influence of the notorious "ring," the legacies of mismanagement still affect the operation of the city's gas plant. Notwithstanding this fact, or rather by taking it into consideration, the Philadelphia gas lighting system may be taken as a fair example of municipal ownership on a large scale. Whatever may be the deductions or conclusions of others, it has been conclusively proven that the people of Philadelphia are quite unanimously satisfied with the possession of the plant as a portion of the city's property. They would overwhelmingly oppose its sale to a private corporation. Their desire is to have existing defects removed and the system perpetually continued under the exclusive and direct control of the municipality.

A bit of history is necessary to show the relation of the gas trust to the plant and the effect of its mismanagement on the operation of the system to-day. The plant was built by the city in 1836, after city councils had refused several applications from private citizens and corporations to carry out the work. It was only after years of deliberation, and after sending a commission to Europe to investigate gas lighting, that the city authorities were convinced of the advisability of introducing the system into Philadelphia. When at last they did come to the conclusion that a municipal plant should be established, they made a mistake that led to serious consequences, by providing that twelve trustees should manage the plant.

The rule of the gas trustees, once secured, was tightened by contracts which the city made with loan-buyers that as a "guarantee" the trustee system should be maintained. Under these contracts the city literally placed the plant under the irrevocable dominion of the trustees, who could not be ousted until the last of these original loans expired, which was in 1885.

As in numerous other instances of the delegation of unlimited power to irresponsible bodies, the creature became master of its creator, and during its long period of existence the gas trust of Philadelphia not only exercised absolute control over the system that was placed in its care, but actually dominated all the affairs of city government. Councils were entirely under the "ring's" dominion, and the trustees were enthroned kings in the political arena. To extend and perpetuate their domin-

ion, hundreds, even thousands, of useless employes were kept in the service of the gas bureau to exercise political influence, and the absolute dictation of the gas trust in all municipal affairs was notorious.

Notwithstanding such subversion of administrative power to political ends, the gas plant was always a profitable source of revenue to the city. When the plant began operations in 1836, consumers were charged \$3.50 per thousand feet for gas. This price was gradually reduced, first to \$3, then to \$2.75, \$2.50, \$2.25, \$2, \$1.75, \$1.60, \$1.50, and finally to \$1 per 1,000 feet. Each reduction was made to accommodate the increasing demand for the product, and the profits increased as the price of gas was reduced.

During the last few years of the administration of the trust, the gross profits averaged yearly from \$500,000 to \$600,000, and when the bureau of gas took charge of the affairs of the plant under the new municipal charter, the trustees turned over to the city nearly \$3,000,000 in accumulated profits. This apparently satisfactory financial exhibit, however, was possible only at the sacrifice of the efficiency of the plant. Of the four large gas works in the city, only one was equipped with any of the modern improvements in gas making. In a feeling of disgust at the state of affairs which existed when the city assumed direct management of the plant, Director of Public Works Wagner, in his first annual report, made an official statement as follows:

"It is useless for the city to engage in a business that can be made profitable, and then to neglect improvements or enlargements necessary to meet the demands of its consumers, and of a character to insure good gas at the minimum cost of production. Except in the Ninth Ward Works, where modern improvements have been to some extent introduced by the erection of regenerative furnaces, gas is made after the most antiquated and expensive methods. Modern appliances have not been promptly nor systematically introduced. Machinery of all kinds, in connection with the making of gas from coal, is altogether unknown in the works, and the result is that these rank lower in the output per man than any other works in the country. Immediate steps should be taken to introduce machinery and appliances which in other places have increased more than fifty per cent. the amount of gas made per man employed."

This has been the complaint of public officials in the gas bureau ever since. The improvements to the plant which the trustees should have made under their administration have not even yet been accomplished. It is true, however, that the efficiency of the works in the manufacture of gas has been greatly improved by the introduction of modern methods and machinery. Other improvements provided for will still further increase the quantity, improve the quality, and lessen the cost of the product.

The most imperative need of the plant to-day is the laying of new and larger mains in place of the worn-out pipes that have been in service for many years, and which are entirely inadequate to supply the demand in several sections of the city. Small mains, corroded and rusted from the service of twenty years or over, are subjected to

a high pressure which results in an enormous amount of leakage. In the following table, which shows the production of the plant for the last ten years, the amount supplied to consumers and the city, and the amount of leakage, it will be seen that the leakage has increased nearly every year, alarmingly out of proportion with the production and actual consumption:

YEAR.	Made at Works.	Public Lights On Streets and in Public Offices and Squares, etc.	Private Lights.	Used At Works, Offices and Stations.	Un-accounted for gas and Leakage.
1885.	2,757,844,000	409,458,760	1,873,354,300	24,210,500	450,820,440
1886.	2,946,407,000	481,965,218	2,066,653,400	23,456,300	374,332,082
1887.	3,154,842,000	506,499,881	2,181,349,900	25,651,800	441,340,419
1888.	3,209,874,000	536,158,081	2,174,136,000	28,843,900	470,736,019
1889.	3,151,156,000	521,401,101	2,204,814,100	25,598,500	399,342,299
1890.	3,311,995,000	551,459,572	2,241,962,394	23,747,300	494,825,734
1891.	3,391,887,000	587,398,328	2,311,197,800	25,320,700	467,970,172
1892.	3,584,589,000	594,303,605	2,402,480,600	26,254,400	561,650,395
1893.	3,803,316,000	602,392,714	2,541,437,400	26,612,700	632,873,186
1894.	4,110,401,000	623,313,751	2,456,531,520	26,698,800	1,003,856,929
1895.	4,422,752,000	638,494,005	2,755,277,480	26,840,200	1,002,140,315

It will thus be seen that the leakage is 22 per cent. of the entire production, and more than one-third as much as the entire amount of gas delivered to private consumers! Happily, steps are soon to be taken to remedy this, the most important defect in the system. Councils have at last awakened to the importunities of the gas bureau officials and the people, and have made provision for the expenditure of \$1,000,000 in improvements. New mains are to be put down, and the entire plant put in a state of thorough efficiency.

When the bureau of gas took the place of the gas trust in 1887, the price of gas to consumers was \$1.50 per thousand feet. In that year the gross profits to the city amounted to \$684,357, which increased to \$1,459,069 in 1893. In January, 1894, the price of gas was reduced to \$1 per thousand feet, at which figure it has since remained. The reduction in the price was responsible for a drop in the profits to \$192,411 in 1894. The profits for 1895 showed a still further reduction to \$115,853. The entire revenue of the plant during the year was \$3,155,956, and the current expenses were \$2,985,513, and there was expended for permanent improvements \$54,590.

These figures, however, do not accurately show the revenues of the bureau. The amount of gas furnished free during the year to the city's buildings, schools, police and fire houses, etc., as well as for lighting the 21,621 street lamps throughout the city, was, as shown by the table, 638,494,005 cubic feet. If sold to the public at the existing rate, it would have represented an addition of \$638,494 to the city treasury. Under the gas trust, the city was obliged to pay for every light used in its buildings or in the public service.

An analysis of the receipts and expenditures of the gas bureau for ten years prior to 1894, under the rates of \$1.60 and \$1.50 per 1,000 feet, made recently by qualified authority, placed the gross profits of the city from the operation of the plant at 20 per cent. This was on an estimated cost of duplicating the plant at \$7,600,000, which included the value of land at \$3,000,000. Upon the same basis, placing the present value of the plant at \$8,000,000, the profits to the city under "dollar gas" during 1895 approximated 10 per cent. In these calculations, of course, the value of the gas furnished free to the city was included in the profits.

The actual cost of the production of gas cannot be accurately computed, but is closely estimated to be 60 cents per thousand feet, or even less. When the improvements in contemplation are completed, the city officials confidently expect that the city will be able to furnish gas at 75 cents per thousand feet, with a good margin of tion in price is receiving consideration.

The introduction of electric lighting has had no appreciable effect upon the consumption of gas, as will be seen by the yearly increase shown in the table given above. Philadelphia has a much larger number of electric lights in street service than any other city in the country, the number being 6,743, in addition to about 12,000 gasoline lamps for street lighting. While electric lighting has in a large measure been substituted for gas lighting on the streets, and there has been but little increase in the number of street gas lamps, the household consumption of gas has not been checked. This, too, despite the fact that electricity is used to a large extent for household illumination. On the other hand, gas has been used extensively for cooking and heating purposes since its reduction in price to \$1 per thousand feet.

There have been a number of propositions made to the city to sell out the plant during the last ten or twelve years. The last one, made a year ago, was an offer of \$20,000,000 from a New York syndicate. The action taken by councils at the time in passing a curt resolution declining to consider "any proposition for the sale of the gas works" was but a reflex of the opinion and sentiment of the people of the city on the subject.

When the necessary improvements are completed, there will yet remain one other step for the city to take to rid itself entirely of the last vestiges of the legacy of mismanagement left by the gas trustees. It was found necessary, when the trustees turned over the plant to the city, to make a contract with a private corporation for water gas to augment the supply of coal gas manufactured by the city, as the latter was entirely inadequate to meet the demand. The private water gas plant was set up at one of the city's gas works. The first contract was for \$200,000 a year, which has steadily risen until the city now pays the corporation \$700,000 yearly for water gas at the rate of 37 cents per thousand feet. During 1895, of the total product of 4,422,752,000 feet, the private corporation furnished 1,694,687,000 feet of water gas. It has frequently been asserted that this contract, exceedingly profitable to the corporation, is maintained through political influence. Certain it is that frequent protests have been made in councils against continuing the contract and allowing the corporation to fasten its grip on the city's plant. The agitation has taken the form of a demand for the city to establish its own water gas plant, or to buy out the one which it has fostered. The prospects are that councils will ultimately be obliged to accede to the demand and bring every branch of the system under direct control of the municipality.

—All over Germany the franchise payments are so arranged as to increase with the renting capacity of the privilege. The fixed tax on street maintenance, plus the gross receipts percentage, plus a contingent proportion of surplus net profits, is the approved German form of compensation for street railway franchises. The fares for minimum distances are 2½ cents.

MAYORS ON FRANCHISES.

EXECUTIVES OF PRINCIPAL CITIES EXPRESS THEIR VIEWS ON THE MUNICIPAL FRANCHISE QUESTION.

MAYOR WURSTER OF BROOKLYN.

The question of municipal franchises is one of great importance, and the granting of them should be properly safe-guarded. The city of Brooklyn receives only a meagre return from the corporations which have received many valuable privileges. The street railway companies, with a single exception, pay nothing for their franchises, and are only subject to a license fee of \$20 annually for each car operated. One company pays a percentage upon its receipts under the law in force at the time its franchise was secured, in addition to the license fee. A liberal system of transfers was recently adopted by the street car companies, which is of great public benefit. The electric light companies furnish a few free lights in return for the grants made by the city to them.

There should be a far more adequate return from the franchises granted in the city of Brooklyn than is now received. The streets occupied by railroad tracks should be paved and kept in repair by the companies operating cars, in return for the privileges granted to them. The companies were formerly compelled to keep the space occupied by their tracks paved, but a recent law, adopted after the change of motive power from horses to the overhead trolley system, requires the companies to pay one-fourth of the cost of new pavement in any street occupied by car tracks under a city franchise.

The electric light companies should furnish a much larger number of free public lights than they now do in view of the privileges accorded to them. The use of the underground conduits, laid by some of the companies for police and fire telegraph wires, has been accorded to the city, but it is found impracticable thus far to use them. There should be free telephones furnished in the public offices for the use of the city, in return for the grants made to telephone companies of the use of public property for their private benefit.

In this way the revenue of the city would practically be increased by a lessening of the expenses necessary to be incurred annually, and a consequent reduction of the tax rate, which is a matter of direct benefit to every taxpayer.

MAYOR DORAN, OF ST. PAUL.

Frank B. Doran, St. Paul's new and thoughtful mayor, writes:

"In regard to franchises, I have to say that the city owns its own water-works but the telephone and lighting companies afford no direct revenue to the city. The telephone company furnishes twenty free telephones to the city and the rest at half rates. Under the terms of the street railway company's franchise, which is for fifty years from 1889, that company must pay to the city a tax of ten dollars for every car in use, and three per cent. of its gross earnings. This, however, includes the regular tax on its real and personal property, so that the city

treasury only receives from the company the difference between the regular tax and the gross earnings tax. This tax has brought in the following sums: 1891, \$5,506.95; 1892, \$11,066.94; 1893, \$12,963.19; 1894, 12,737.04; 1895, \$10,968.96; 1896, \$11,931.17. In addition to this, the company must pave between its rails and tracks and for two feet outside of its outer rails and keep that portion of the street clean and in good repair. Though this provision is not directly productive of revenue it has saved the citizens many thousands of dollars in assessments.

"I am in favor of a plan of selling franchise privileges for stated periods. Such a plan would enable our cities to realize upon a growing valuation of franchises and release the buyer from what may prove a ruinous contract. I do not, however, endorse a too general ownership of the departments referred to by the city. To me it seems going too far in the direction of paternalism, which I do not favor.

"St. Paul has perhaps unwisely been too liberal in granting exclusive and almost perpetual franchises. This has often taken the form of gratuity or bonus to induce improvements, the excuse being that the city was new and new industries and activities needed encouragement."

MAYOR MCGUIRE, OF SYRACUSE.

James K. McGuire, mayor of Syracuse, expressed his views on the franchise question in a thorough and forceful manner in a message to the city council, in which he vetoed three ordinances designed to give away to a private corporation the use of public property. The message was dated Sept. 22, and it read like this:

"I have vetoed the three resolutions passed at the second last meeting of your honorable body, which award franchises to Eugene Hughes & Co. for electric light and service and underground electrical subways or conduits throughout the city of Syracuse.

"My chief objection is that the municipality receives no rent or returns for the valuable privileges granted the applicants. The streets of our city are the property of the people. We have a right to rent them for the public good, but it is an abuse of power to turn the public highways over to various corporations without receiving fair returns for the use of the property. Our streets are becoming more valuable from year to year through inevitable increase in population, and the time has come when we must utilize these valuable grants for the interests of the city. We must look further ahead than to-morrow, remembering that we are laying the foundations of a city that is destined to be great and populous. These valuable franchises should now be made to pay fair returns or rentals which should continue for all time.

"You accepted my amendments, suggesting a fixed percentage of receipts from the Suburban franchise and also the Lakeside railway franchise, neither of which are nearly as valuable as any one of the three franchises

vetoed to-day. I cannot understand why the clause inserted by the corporation counsel giving the city the moderate rental or percentage of $2\frac{1}{2}$ per cent of the gross receipts of each franchise, should have been eliminated and the city given nothing for the absolute right to use 650 streets for private gain.

"In my inaugural address, delivered to your honorable body at your first meeting, I said among other things:

"We must remember constantly during the next two years that the streets of the city are public property and do not belong to corporations or individuals bent on making money out of the people's streets. The people fix the value of the streets and franchises should not be granted without adequate returns to the city. Many valuable franchises have been given away for nothing. The time has come when we must endeavor to sell franchises to the highest bidder. I would recommend that all franchises granted by your honorable body contain a clause guaranteeing to the city a fixed percentage of the gross receipts of the party or company obtaining the franchise. I would also suggest that important franchises affecting the entire city, be referred to the people for consideration and that the voters be given an opportunity of deciding by ballot as to the wisdom of granting franchises of general importance which interest all localities."

"More than one member of the common council owes his seat to the belief on the part of his constituency that he would not vote to give away a valuable franchise for nothing. We made this question of giving away public franchises, without adequate returns, one of the leading issues of the last campaign. After defeating your opponents on this issue, can the new members of the common council afford to put themselves in a position where they will be justly charged with betraying the people of their respective wards? You cannot expect any better political fate than that which befell several of your predecessors, who were overtaken by the arms of an outraged constituency.

"From a conversation held with Eugene Hughes about two months since, I am convinced that the applicants intend to build and maintain a subway and are acting in good faith. And Syracuse badly needs an underground subway for its various wires, yet the necessities of the city are not sufficient reasons for abandoning the idea of securing unto the city a fair percentage of receipts. The applicants are business men, not philanthropists. They want a privilege which should be rented or sold, and that our streets are valuable for the purposes required cannot be denied. Buying and selling public franchises has become a fixed and profitable custom in all modern cities and no cogent reason is advanced why the city of Syracuse should be excepted, or why a few individuals should be favored at the expense of the 130,000 inhabitants who own the streets and are willing that the city officials should rent them, but not make them common property for private companies. We should consider our action on these franchises in the light of past experiences and hesitate when we reflect over the results of various franchises granted in the history of our city.

"The old water company and the old gas company are two conspicuous instances of corporations who amass great wealth as the results of franchises granted them for which the city received no compensation. We must

build for the future as well as for to-morrow and should leave a valuable legacy for those who must follow us.

"The clause in each franchise which, at the end of ten years, empowers the city to purchase the plant, etc., is excellent as far as it goes, and is in accordance with the theories of your executive. It is probable, however, at the end of ten years the municipality will not be in such financial condition as to warrant the purchase of properties likely to be worth millions of dollars. Should we find ourselves unable to buy these properties by the year 1906 we lose the option thereon and they continue to be the property of private individuals for an indefinite period. Consent should be given the city to acquire the property in the year 1906 and any year thereafter.

"I am earnestly of the opinion that an annual tax of $2\frac{1}{2}$ or even 3 per cent of the gross receipts of all three properties is only in the nature of a fair rental for the use of our streets to the applicants. It would mean a steady income to the city of at least \$10,000, and possibly \$20,000 per year. The receipts from these three franchises alone, if operated, would pay for the complete care of all our public parks. The only excuse given for granting franchises without compensation is the claim that the people want competition and the old companies did not have to pay for their franchises. We must remember, however, that franchises are more valuable than formerly; and that the utilization of machinery and improved methods have cheapened electricity, electrical supplies and every kind of material, which enables applicants for franchises to make better terms with the city.

"Competition is what the people want, but we have learned from experience that intense competition soon leads to consolidation, combinations and high prices. One company endeavors to drive the other out of existence and whichever corporation succeeds, it makes up for what it has lost in the struggle by charging the people high prices. It is not an exorbitant tax to make these franchise applicants pay $2\frac{1}{2}$ per cent of their receipts. Many citizens are eager to patronize a company which gives the city a percentage, which result will force the old company to make concessions to the city. The people will sustain the common council and public opinion will force the old companies to make more favorable terms with the city. I beg of you not to lose sight of this opportunity to protect the interests of the municipality. We received \$15,000 cash for a gas franchise recently. I believe the telephone and electric light franchise should bring a cash payment in addition to the yearly percentages suggested."

MAYOR MAC VICAR OF DES MOINES.

John Mac Vicar, the aggressive mayor of Des Moines, writes as follows:

"The city of Des Moines, at the present time, derives very little revenue from the use of its streets by railway, light, water, telephone and other corporations. Recently, however, our council has attempted to exact a revenue from such corporations for the use of the streets, and we now receive a nominal sum from the electric light and gas plants. We have recently established our right to regulate the rates charged for gas and water for public and private consumption, and have been able to largely reduce the charges. We have recently granted a charter

to a local telephone company to operate a cooperative telephone system in our city, containing a provision whereby the city may, after a specified time, become the owner of the system. We have also made a proposition to our water-works company to purchase from them their plant, and in case they refuse to sell, the city will proceed to build an independent water-works. We are also obtaining such information as we can as to the advisability of the city establishing a municipal electric light plant. From our street railway company we are deriving no revenue, nor are we liable to for some time to come, although their charter provides that after 1896 they are to pay to the city five per cent. of their *net* receipts.

"Our citizens realize the fact that we have given away very valuable privileges without having provided that the city should receive a reasonable return for the same, and they are determined to make a vigorous attempt to correct these mistakes."

MAYOR TAGGART OF INDIANAPOLIS.

Thomas Taggart, mayor of Indianapolis, writes on the franchise question as follows :

It is the settled policy of the city of Indianapolis, and has been since the adoption of the present charter in 1891, to exact a cash return for all franchises which may be granted by the city. There is now paid into the city treasury over \$12,000 per annum on account of the use of the public streets by the electric lighting and telephone companies.

The street railway companies as yet pay nothing. A franchise, which was regarded as very favorable to the city, and providing for the payment of 10 per cent. per annum for the first five years, 12½ per cent. per annum for the next five years, 13½ per cent. per annum for the next five years and thereafter 14½ per cent. per annum, was passed in 1893. This franchise was granted to the City Railway Company, a new corporation, and since that time the whole matter has been in litigation. We feel satisfied that this litigation will ultimately be settled in the city's favor.

I regard the payment by those using the public streets, of a just and fair amount, as the only proper return they are able to make for such privileges, and I think that no franchise should be granted without reasonable compensation.

MAYOR OCHS OF CHATTANOOGA.

George W. Ochs, mayor of Chattanooga and one of the best municipal executives in this country, in response to a request for his views on the franchise question, sends us a copy of a veto message he recently sent to the council. The message vetoes resolutions passed by the city council wherein the Chattanooga Electric Street Railway is granted an extension of nine months from June 2, 1896, to build its lines on Fourth street and Harrison avenue, and is relieved from forfeiture of its franchise for non-use of tracks on Georgia avenue, Fourth street, Seventh, Broad and Carter streets. We quote from the message as follows :

"As a general proposition every man has a right to dispose of his own property as he pleases, provided he

does not prejudice the rights of his neighbor; he may donate it if he wishes. But the rule is entirely different in the case of a person holding property as a trustee for others. He cannot be generous with the goods he holds in trust, but he must consider the interests and the rights of the owners thereof. Generosity must be subordinated to fidelity, when he deals with property held in trust; what would be applauded as liberality in the individual when dealing with his own property, would be condemned as faithlessness and criminality when it affects trust property.

"The streets of Chattanooga have been bought and paid for by the people of Chattanooga. The expense of condemning, laying out, grading, and improving them has amounted to millions of dollars and has been paid by the people in taxes; the people are therefore the real and equitable owners of the streets.

"The mayor and aldermen are trustees, holding these streets in trust for the use and benefit of the people. As such trustees it is the duty of the mayor and aldermen to preserve the trust property solely for the interest and benefit of those who have trusted them. If the right to use these streets, which are the property of the people, is a grant of value in the market or to any corporation, it is manifest that this grant should not be given without just and full compensation. That such rights of way over the streets of a populous and thriving city are of great value to a street railway corporation, there can be no question."

* * * * *

"The city has paid dearly for the right to regain its franchises granted upon the streets in question; it has now regained them and should it now again surrender them without due compensation?

"There are three ways in which the street railway company can remunerate the city for these franchises.

"First—By paying a fixed sum for each street as was charged for Tenth street, or by paying indirectly by paving the entire streets they occupy, as has been petitioned of the board by the property owners on Georgia avenue and Fourth streets.

"Second—By paying the city an annual percentage of gross earnings.

"Third—By entering into a contract with the city for a reduction of their rates of fare and for transfers.

"Whatever course is pursued the franchise should be limited. No perpetual franchise should be again granted under any consideration. Think of our present situation regarding the gas, electric light, telephone, telegraph and water-works franchises! They are all perpetual. Not one cent was paid for them. They are today worth over a million dollars. Not only have they cost nothing, but the telephone and telegraph companies were last year relieved by the legislature of all municipal license tax!

"The trend of popular municipal economies now is to own its own quasi-public plants. In nearly every city of England, Scotland, Germany, Belgium, and even in Italy, this is now the case and they are being leased by the cities at enormous profits; it is the case now at Toronto; Detroit has taken the initiative in this country and the idea is growing. Whatever contract is made for these or

any other streets should certainly be for a stipulated period, with the reserved right at the end thereof to purchase at an arbitrated consideration, or at the end of the contract to make new stipulations."

* * * * *

"In addition to half rates for workingmen and school children at Richmond, the street railway company pays the city 5 per cent. of its gross receipts; at Baltimore 9 per cent.; Toronto receives \$800 per mile per year for its tracks, six tickets are sold for a quarter; workingmen get eight tickets for a quarter, school children ten, and the city besides gets eight per cent. of the gross receipts and still the street railway company is making money. At Detroit eight tickets are sold for a quarter and the city has the right to purchase the lines at an arbitrated consideration at the end of twenty-five years.

"There has been a rapid tendency of late years in the direction of making charges for street franchises and rights of way, and many states have made strict regulations by law for the sale of the same at public auction to the highest bidder.

"In 1886, the state of New York enacted a law providing that the 'local authorities of any incorporated city to whom application may be made for the construction, maintenance, use, operation or extension of any street railroad through any of the streets of such city, must provide as a condition of the consent to use such street, that the right, franchise or privilege of using the same shall be sold at public auction to the bidder who will agree to give the largest percentage per annum of the gross receipts of such company or corporation,' and the method of advertisement, etc., is prescribed in detail by the statute.

"The new constitution of Kentucky, adopted in 1891, provides that before any city may grant any street railway franchise, 'such municipality shall first, after due advertisement, receive bids therefor publicly, and award the same to the highest and best bidder.'

"Evansville, Ind., by state law passed in 1891, cannot grant the use of its streets or alleys to any street railway company, for less consideration than two per cent. per annum of the gross receipts of the business.

"And so it is that there is a general awakening to a correct and enlightened understanding of the public rights and interests on this subject, and the mayor and aldermen of Chattanooga cannot afford to shut their eyes to the light, or ignore the vested rights of the tax payers and people, or be in a hurry to give away rights over the streets, which are undoubtedly of great and increasing value."

—Birmingham built a car line costing \$75,000 and added to it until it reached twenty-two miles of track. It leased it to a company at four per cent. per annum for the first fourteen years, and five per cent. for the remaining seven years. The company is to pay an annual sum which at compound interest will accumulate a fund equal to the whole capital outlay in the twenty-one years; estimated four per cent. for fourteen and five per cent. for seven years. Also to pay charges for repairs and maintenance. The city entirely controlling the rates of fares and character of service.

THE GREAT BOSTON SUBWAY.

BY F. KLEINSCHMIDT.

A visitor in Boston three years hence will be struck by the wonderful change which will have come over the streets of that city when the great Boston subway has been put into use for street car traffic.

At that time one-half of the trolley cars which now blockade the crooked streets will be gliding noiselessly beneath the business portion of the city, diving into the ground in the Public Garden and emerging in the extreme northern part of the city. All of the cars entering the city from the west, through the Back Bay and a portion of the South End, will utilize the subway, while some other means of rapid transit has yet to be devised for the car lines lying to the eastward.

The problem of street car travel in Boston is peculiar, like the city itself. The topography of the city is such that the entire volume of travel is contracted into two narrow streets in the very heart of the city. Roughly speaking, one-half of the cars pass through Tremont street and the other half make their way the best they can, through the windings of Washington street. The Common and Beacon Hill shut off the car lines to the west of Tremont street and streets to the east of Washington street diverge so oddly that they are of no use in solving the problem. Boston has gained a very ill name among strangers for the "Boston blocks," which occur often and result in piling up cars for several miles along the two crowded thoroughfares and delaying passengers sometimes for several hours.

Many plans have been proposed to relieve the congestion in the business district. With some, so simple an expedient as the widening of Tremont street was deemed a sufficient solution of the problem for the time being, the wagons being given more opportunity to pass without getting into the way of the cars. One man suggested that a 25-foot alley be cut through the buildings half way between Washington and Tremont streets from the south end to a point near the northern railway depots. This plan was actually championed by many people, although it would provide for but two more tracks through the busy district and the cost would have been in the neighborhood of \$6,000,000. A storm of opposition was aroused by the effort of the West End Street Railway Company to lay its tracks across the Boston Common. Aside from sentimental considerations, the use of the Common would have caused inconvenience to the pedestrian public and would have resulted in many accidents.

The proposition to bury the cars underground met with little support at first, but as each of the other plans proved to be unpractical, it began to be looked upon with more favor.

Sentiment in favor of the subway finally took shape in 1893, when the legislature created a Board of Subway Commissioners. This commission, after reporting plans for the construction of a subway at a cost of \$5,000,000, including land damages, was dissolved, and the power to build the subway was vested in the Boston Transit Commission, created by an act of the legislature of 1894. The act authorized the commission, but did not compel it, to build a subway substantially on the lines now being followed and also to tunnel under the harbor to East Boston. The limit of expenditure set by the legislature was

\$7,000,000, and the commission was allowed five years in which to finish the work.

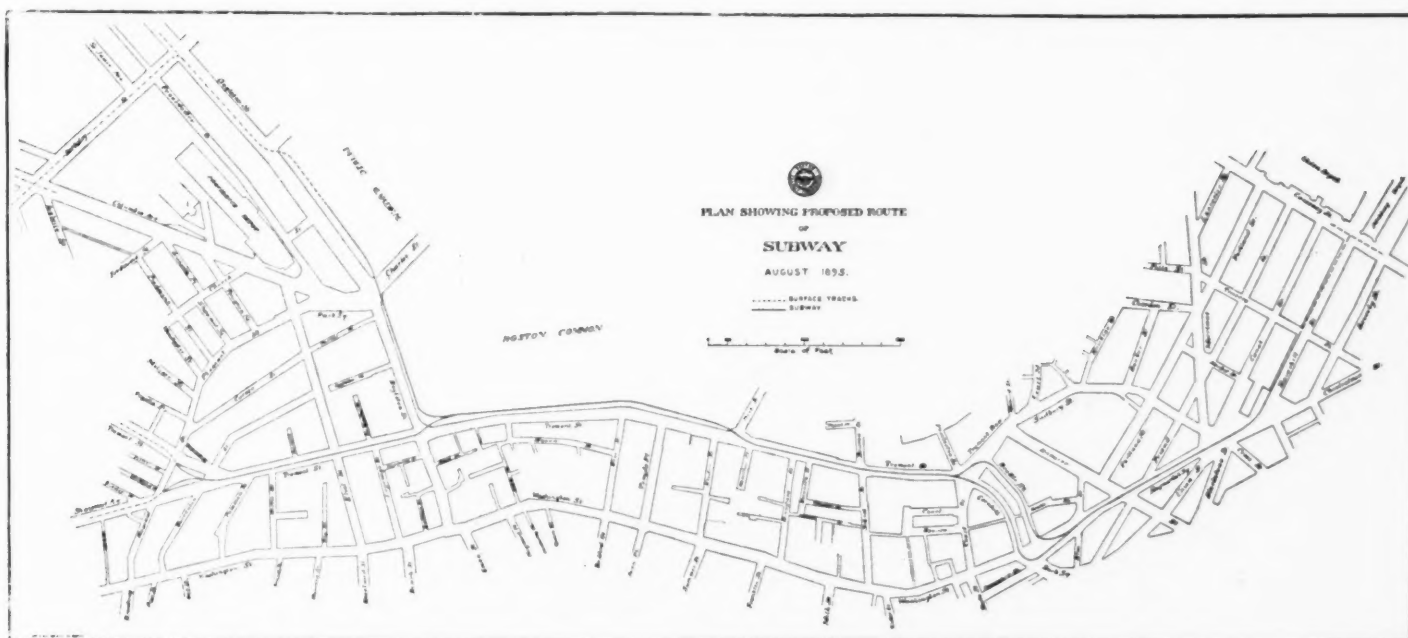
The members of the commission are George G. Crocker, chairman; Charles H. Dalton, Thomas J. Gargan, George F. Swain, and Albert C. Burrage, all gentlemen in whom the people place the highest confidence and who uphold most creditably the high ideal of Boston public commissions. Howard A. Carson was appointed chief engineer, and B. Leighton Beal, secretary to the commission.

The transit commission set to work immediately and selected an excellent corps of assistants in its engineering department. The route decided upon was from the old Boston and Maine Station in the North End, through Washington street, Cornhill and Brattle street, to Scollay Square, thence through Tremont street to the corner of Boylston, where the subway branches into two stems, one continuing on Tremont street to Pleasant, and the other following Boylston street to the Public Garden. The subway was to be built directly under the streets as

mouth of the subway, where two trunk lines from Tremont street and Shawmut avenue enter the tunnel together.

The engineering department was organized in September, 1894. The chief engineer made an exhaustive study of European underground roads and tunnels and then set the department to work mapping out from records the hundreds of pipes and conduits which would be encountered when the work of excavation began. Surface and sub-surface surveys were made and sixty-seven borings served to determine the character of the ground and the difficulties to be met.

Three types of tunnel were discussed and the one chosen has a roof composed of jack arches of masonry, resting on steel I-beams whose axes run crosswise of the subway, with side walls of concrete masonry strengthened by steel I-beams. Investigation showed that the dangers from rust and electrolysis acting upon the beams were but slight, as the concrete afforded much protection, and that even if the steel rusted away, the concrete would be



far south as the junction of Tremont and Park streets, whence it was to run under the entire length of the Tremont street mall of the Common. The Boylston street branch was also to underlie the mall and to traverse the Public Garden and emerge in the latter park. The only change in this route has been the substitution of Hanover street for Brattle street and Cornhill as the connecting link between Scollay Square and Washington street.

At Park street, under the northerly end of the Common, a great loop has been arranged for the return of a number of the cars to the Back Bay. From this loop to the corner of Tremont and Boylston street, a four-track tunnel is planned and now partially built. The rest of the subway will contain but two tracks.

Much ingenuity was exercised in laying out the junction of the two branches of the subway. It was finally decided to avoid the delays due to intersecting tracks, which would almost defeat the purpose of the subway, by constructing a "sub-subway" for one of the tracks, which avoids intersections by dipping beneath the others. The same plan is to be followed at the Tremont street

strong enough to bear all the burden. The use of steel beams made the subway strong from the beginning, without waiting for the masonry to dry. The depth of the subway roof has been kept down to about three feet. The dimensions of the two-track subway are: Width, 24 feet; height above the centre, 16 feet 6 inches, giving a clear height of 14 feet above the rails. The four-track subway has the same dimension of height and a width of 48 feet, with a row of central columns supporting the roof, between the second and third tracks.

For the purposes of construction, the subway was divided into ten sections, two of which are now finished, while work is progressing upon five more. The methods of excavation varied with the nature of the ground. In the Public Garden, the land had been filled and it was easily removed. On the Boylston street mall of the Common, a number of graves were met with and a number of bodies were dug up. One trench was dug here, the earth being carted out at one end. In passing under Charles street from the Public Garden to the Common, a pit was sunk occupying one-half of the street, and when

the subway roof was completed and the street restored, the other side was treated the same way. On the Tremont street mall several parallel trenches were dug and the earth carted out. At the junction of the two branches of the subway, the earth is being raised in buckets and deposited in dirt-cars which are drawn off by an absurd little locomotive and run out upon a trestle where the soil is dumped upon the "training field" of the Common and later leveled off. Farther down town the underground labors are carried on while the street is crowded with midday traffic. Pits are sunk between the car track and the curbing, and the earth is hoisted out in buckets and carried off by a bucket railroad on stilts to the quiet of Court Square, where the tip-carts are waiting to carry it to the Common. By digging in both sides of the street at the same time and running timber supports and later the steel beams themselves through under the car tracks, a whole section of the street is completed. While there have been several cave-ins, the damage has not been very great and there has been no loss of life.

The subway is to be as nearly water-tight as science can make it. The concrete bottom or invert prevents the tides from rising into the tunnel in the parts of it that are under the level of high water and the side-walls are to be plastered with asphalt. A test of the walls of the entrance in the Public Garden, treated in this way, showed that they withstood percolation perfectly. The invert is two feet thick at the sides, inclining toward the centre, where it is one foot thick, and it rests on 30-foot piles where the ground is soft and swampy. A 12-inch vitrified half-pipe, the bottom part of a covered drain, conveys the water which may get into the subway to a series of pump-wells, where pumps, operated by electricity, will raise the water into the common sewers. Ventilation will be obtained by means of fans, placed 600 feet apart, capable of removing all of the air in the subway in ten minutes when running at a moderate speed, and in seven minutes when running at greatest speed. The fans will be run by electric motors obtaining their power from the feed wires of the electric car system.

From present appearances, the cost of the subway will fall within \$5,000,000, although the limit allowed by the state is \$7,000,000. Of this amount, \$1,500,000 is required for land damages. The northern terminus is the site of the old Boston and Maine Station, which occupied the block between Canal, Haverhill and Travers streets and Haymarket Square. The value of this land is \$750,000. At the Tremont street end of the subway, a triangular block between Tremont and Pleasant streets and Shawmut avenue has been seized by the commission, the value of this land also being \$750,000. The plans of the terminals have not yet been chosen, although a great variety of forms of stations are under consideration.

The cost of construction has been defrayed by the issuing of bonds from time to time, the bonds selling at a high premium, and the premium being paid into the sinking fund.

The commission has reserved to itself the purchase of the steel used in the subway, the material being the best obtainable in the market.

The time for the completion of the subway is July, 1899. As about one-half of the subway is already completed, it is expected that the entire structure will be fin-

ished long before the stipulated time. The bids for the first section were advertised for on Feb. 20, 1895, and were opened on March 20, 1895. On March 28, the first spadeful of earth was removed, in the Public Garden, by the chairman of the board, in the presence of Governor Greenhalge.

The stations, which will be located at the intersection of every important street, will be of the type known as "island platforms." They will be located between the tracks in such a way that there will be no need of crossing the tracks. The descent from the street will be 16 feet, the platform being on a level with the step of the car. There will be overhead shelters of a kind not yet determined, located in the Common, in Scollay Square and at a few junctions of streets, affording entrance to the underground stations directly beneath.

When the subway is in operation, there will be five miles of unobstructed cars passing noiselessly under the crowded and tortuous streets of the city. The clanging of warning bells will be done away with, because there will be no one to warn off of the tracks. The air will be pure and the subway will be almost as bright as day from the thousands of electric lights on the walls and columns. For years to come the capacity of the subway will not be taxed, and when it becomes inadequate to the needs of the travelling public, some other method of rapid transit through the heart of the city will have to be devised.

It is likely that the subway will be leased to the street railway companies for an annual rental. A bill presented last winter in the legislature designed to give a fifty years' lease to the West End Road was defeated, but it is expected that some such arrangement will be made with the traction companies.

The merits of the subway system are too many to enumerate. The saving of time, power and expense are so evident that it is unnecessary to expatiate upon them. The increase in traffic capacity is enormous and the avoidance of grade crossings is the least advantage of the system.

STREET RAILWAY CAPITALIZATION.

It was remarked in these columns, with reference to the striking differences in the capitalization of street railways in different parts of the country, that stock watering and inflation rather than real industrial factors account for them. The correctness of this view, which is held by many competent persons, is placed beyond doubt by the following significant contrast. The capitalization of the street railways averages \$95,600 a mile, while that of the steam railways averages \$62,951 a mile. It is, of course, well known that the cost of constructing the average mile of steam railroad track is much greater than that of laying the average mile of street railway track, yet the capitalization of the latter is nearly a third higher than that of the steam roads. No better proof of inflation can be desired. The figures prove that the street railway corporations have abused the rights conferred on them by the legislatures and practiced outrageous extortion. The evils of private monopoly are thus responsible for the loud demand for public ownership and control. Unfortunately the latter develops evils and abuses of its own, and cannot be recommended as an improvement in the present arrangement. But greater control, more compensation to the public in the shape of lower fares or the payment of a percentage of earnings can be advocated without fear of injurious consequences. Monopoly alone can object to the movement for lower fares and rigid public supervision.—Chicago Post.

WORK OF LIBRARIES.

BY ANNA R. WEEKS.

Four hundred delegates met in Cleveland at the recent annual session of the American Library Association. This is the largest attendance any of these sessions ever had. It indicates a surprising and newly developed interest in the possibilities of the public library. Those present at the convention were chiefly librarians, with a sprinkling of library trustees, library students, editors of literary journals and state inspectors.

Among the subjects presented the most popular were those in regard to the new building for the congressional library at Washington, travelling libraries, picture exhibits, children's rooms and a trip to Europe next summer. The "children's room" seems to be one of the latest innovations in a few of the largest and most progressive towns. Among these the Buffalo free library appears to lead. Their special invitation to children was in the form of a poster, placed in various conspicuous places where children were most likely to gather. The invitation is most alluring, and reads thus:

BOYS AND GIRLS!
A ROOM for you in Buffalo.
Free Public Library.
BOOKS for you to read.
PICTURES for you to look at.
MAPS for you to put together.
Some one to tell you stories!
Bring your little brothers and sisters.
COME AND ENJOY YOUR ROOM!

This poster served to post all. Immediately after its appearance the children came in droves. They stayed to be charmed and to come again, probably attached thus for life to the uses of a library.

Some libraries add quiet games, such as sliced animals and maps, to their equipment for children; some have a kindergartner in charge. In one place where the Buffalo scheme was tried the children's accommodations had to be enlarged at once. Detroit has a large, light children's room, and in this have been placed a large number of such books as are considered especially suited for them. Of course, the latest policy is to allow them access to the books, thus teaching them care in handling, and making them feel a personal friendship with what lies between the covers. Some of these rooms have toilet arrangements, so that the children who come with soiled hands may wash before touching the volumes.

Denver has a beautifully lighted and arranged juvenile department. After this room had been open about a year and a half, its total circulation being 90,000 volumes, only 100 volumes were missing. The librarian, John Cotton Dana, points out that this shows children can be trusted with public property. The use of a special room does not exclude them from the rest of the library. Librarians say that parents exercise but little care over their children's reading. The more thoughtful ones therefore feel that they must do this for the child, exactly as the public school gives the other side of the child's education.

The travelling library is another innovation which the curator of books has begun. This, in a word, is a loan of books by the state to a community. It is expected that this is to be of special use to those communities which are

poor and have but a small library, or none. Books are selected to the number of twenty-five, fifty or one hundred, placed in a strong bookcase and carefully shipped to their destination. As to the books, they are furnished free, but there must be a small charge to cover cost of cases, catalogues, records and transportation. Of course they are returned when read, and cannot be kept longer than six months. The collection may then be exchanged for another, and so on, indefinitely.

Four years since New York State began this work, and spends \$25,000 a year for it. Michigan and Iowa have also adopted the travelling library, and Minnesota, Pennsylvania and Illinois book lovers are planning to introduce the plan in more states. When a community without a library borrows books thus it generally results in the establishment of a permanent library. The Denver public library loans out books according to the same system in various parts of Colorado.

The magnificent new congressional library building was described by its engineer-architect, Bernard R. Green. It is of New Hampshire granite in the style of the Italian renaissance and has cost \$6,500,000. The building covers four acres of ground, with practically unlimited shelf-room. The most eminent painters and sculptors of the United States have lent their aid in beautifying this building. From the library to the capitol, nearly a quarter of a mile, runs a tunnel. Through this pass telephone wires and automatic book-carriers run, so that members can call for books and get them without leaving the capitol. Architect Green promises that the library building will be ready for use next winter.

At the end of the library century the picture rivals the book. Many libraries are making collections of them. This does not mean framed pictures permanently hung, but loose ones kept in portfolios and enjoyed in the reading-rooms. Sometimes these collections are very costly, but often they are within the reach of all. Duplicate magazines are cut to pieces and the pictures mounted on manilla paper or soft gray cardboard. As American magazine illustration is now so excellent, the library thus commands a collection which will create the best ideals in the pictorial art, for even the country village.

They also utilize the colored plates that accompany some of the art journals, posters, etc.; they call for gifts of amateur photography in the community and thus they will in time gather pictures which will be of strong local historic interest at almost no expense. Special loan exhibits are also hung. Worcester, Mass., has done a surprising amount of this, being able to command the neighboring offices of an art society and having an art critic as librarian.

The public library has been far from what it ought to be, not because it is public, but because the people themselves have never had a proper conception of its province and possibilities. But now that Pentecostal spirit, which begins to thrill every phase of American life and thought, has descended also upon its libraries. The custodian of books are everywhere asking: What shall the people do to be saved? And they are answering this question themselves, not so much in words as in deeds.

The public library is the chrysalis which shall some day develop into that social centre on which the salvation of the community depends.



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HEADS OF BROOKLYN CITY DEPARTMENTS.

W. C. BUSH, Com. of Buildings.
 R. R. APPLETON, Tax Collector.
 J. A. BURR, Corporation Counsel.
 H. G. TAYLOR, Treasurer.

T. L. WOODRUFF, Com. of Parks.
 G. W. PALMER, Comptroller.
 F. W. WURSTER, Mayor.
 B. G. NEFF, Pres't Assessors,
 Z. TAYLOR EMERY, M. D., Com. of Health.

J. R. SUTTON, Auditor.
 W. C. BRYANT, Com. of Fire.
 L. R. WELLES, Com. of Police.
 THEO. B. WILLIS, Com. City Works,
 JOS. BENJAMIN, City Clerk.

CITY GOVERNMENT OF BROOKLYN.

The city of Brooklyn and the county of Kings constitute one body corporate and politic. Its government excels that of any other of the very large cities of this country. This is so because the charter under which Brooklyn is governed provides for a form of government as good as any that has as yet been devised by American law makers, and because the execution of the provisions of the law is in the hands of honest and capable men.

The charter of Brooklyn places all responsibility on the mayor, by giving him the power to appoint the heads of all the important administrative departments, such as the commissioners of city works, police, fire, health, parks, buildings, elections, and charities and corrections, the collector of taxes, the corporation counsel, the bridge trustees and the board of assessors. With the exception of the charities and corrections and the elections, the commissions are all single-headed.

CITY OFFICERS.

The administrative power of the city is vested in the mayor and the heads of the following departments:

- | | |
|-------------------------------|-------------------------|
| 1. Finance. | 8. Police. |
| 2. Audit. | 9. Health. |
| 3. Treasury. | 10. Fire. |
| 4. Collection. | 11. Buildings. |
| 5. Arrears. | 12. City Works. |
| 6. Law. | 13. Parks. |
| 7. Assessment. | 14. Public Instruction. |
| 15. Charities and Correction. | |

THE BOARD OF ALDERMEN.

The legislative power of the city rests with the board of aldermen, which is called the common council. The city is divided into seven aldermanic districts, and each of these is entitled to four aldermen, but no ward shall have more than one representative. There are, therefore, twenty-eight members of the common council, each of whom is elected for two years and receives a salary of \$2,000 per annum. The present members of the council are:

1st district.—Martin F. Conly, John J. Dunn, John Guilfoyle, Dennis F. Dunne.

2d district.—David S. Stewart, Wm. H. Leaycraft, Wm. J. Taylor, Samuel Myers.

3d district.—Milledge D. Messenger, W. S. Curtis, Samuel E. Thompson, Fredrick W. Singleton.

4th district.—Wm. A. Doyle, John J. McGarry, Frank Hennessy, William Kegan.

5th district.—Adam H. Leich, James H. Ruggles, Wm. J. Wassmuth, John F. Oltrogge.

6th district.—Patrick Donlon, David W. Welton, Theodore Maurer, Rudolph C. Bacher.

7th district.—Francis F. Williams, Joseph R. Clark, Charles J. Haubert, Charles H. Francisco.

The council elects its president and other officers. The present chief clerk, Edward Stryker, is one of the most efficient and courteous officials in Brooklyn.

BOARD OF ESTIMATE.

The mayor, comptroller, city auditor, president of the board of aldermen and the county treasurer constitute a

board of estimate, which estimates the amount of money required to be raised by law for all city and county purposes for the year next succeeding. It fixes the salaries of heads of departments, and of the members of the board of assessors.

Before the 15th day of May in each year each city and county officer and department transmits to this board of estimate a statement, in detail, of the amounts which will be necessary for the use of such department or officer.

These estimates the board of estimate acts upon, and on or before the first Monday in July reports its estimate of what amount is required to the common council.

The common council on or before the first Tuesday of October determines how much money shall be raised. It may reduce the amounts as reported by the board of estimate, but it cannot enlarge them.

On or before the second Monday in October the city clerk certifies to the board of aldermen, acting as a board of supervisors of the county, the amounts as they then stand, and these are raised in the next annual tax levy. The amount thus certified to the board of supervisors as necessary is required by law to be raised by the tax levy.

THE MAYOR.

The mayoralty of the city of Brooklyn is a very important office, not only by reason of the magnitude of the city and its government, but because the mayor appoints all the important heads of departments and is therefore responsible to the public for the conduct of all city affairs. By virtue of office the mayor is a justice of the peace, a member of the board of estimate and a trustee of the New York and Brooklyn Bridge and the new East River Bridge.

Frederick W. Wurster, the present mayor, is a successful business man, being the head of a large manufacturing concern. Mr. Wurster is not a politician and, before being elected mayor, the only official position he ever held was that of fire commissioner under Mayor Schieren, which he accepted reluctantly. He is a republican and was elected mayor by a plurality of 2,095 over the regular democratic nominee.

CITY CLERK.

The city clerk, whose term is for two years, is appointed by the common council. He has charge of the papers and documents of the city, except such as are by law committed to the care of the several departments; he countersigns all city bonds and all city warrants, and is the custodian of the city seal; he countersigns all licenses granted by the mayor, and receives all license fees, and performs such other duties as are required by law or by the ordinances of the council. The present city clerk, Joseph Benjamin, is a native of Brooklyn, was educated in its public schools and has been prominent in politics since 1880. He is one of the most active and helpful members of the local republican party, and furthermore, is a thoroughly capable public officer.

DEPARTMENT OF FINANCE.

The comptroller is the head of the financial department of the city. He has the direction and management of the



17 GROUP OF BROOKLYN CITY OFFICIALS.

Top Row.—R. M. WYCKOFF, M. D., Dep't Health Com.; E. B. COOMBS, Coroner; C. L. MICHELL, Excise Com.; N. P. LEWIS, Engineer City Works.
 Second Row.—F. SPERRY, Ass't Corp. Counsel; W. M. PALMER, Mayor's Secretary; F. B. BACKUS, Accountant City Works; G. H. ROWE, Dep't Comptroller.
 Third Row.—I. M. DE VARONA, Engineer City Works; R. W. FIELDING, Dep't Comm. City Works; PETER MILNE, Water Purveyor; R. B. GREEN-WOOD, Jr., Ass't Corp. Counsel.
 Bottom Row.—Dr. G. E. WEST, Sec'y Health Dep't; W. G. COOKE, Ass't Corp. Counsel; MICHAEL FURST, Ass't Corp. Counsel; W. H. GOFF, Supt. Sewers.

accounts and finances of the city, subject to the ordinances of the common council, and also the approval of all bills examined and allowed by the auditor. He is a member of the board of estimate, a commissioner of the sinking fund, and one of the trustees of the New York and Brooklyn Bridge and of the new East River Bridge. George W. Palmer, who now holds the office of comptroller, has achieved much local fame for the careful, sagacious and conscientious manner in which he handles the financial affairs of the city. He has a most competent deputy in the person of George H. Rowe.

DEPARTMENT OF AUDIT.

The duty of the auditor is to examine all bills presented against the city for payment. No money can be drawn from the treasury until the voucher for the same has been examined and allowed by the auditor and approved by the comptroller. The auditor is a member of the board of estimate and a commissioner of the sinking fund. John R. Sutton is the present auditor, and the perfect condition of the affairs of his office shows that he is the right man in the right place.

TREASURY DEPARTMENT.

The treasurer is at the head of this department, and it is his duty to receive and care for all the money of the city, and to pay it out only on vouchers and warrants signed by the mayor or acting-mayor and the comptroller, and countersigned by the city clerk. He is a member of the board of estimate and is ex-officio the treasurer of the board of education. Hubert G. Taylor, the present treasurer, has, by the careful discharge of his duties, saved the city an immense amount of money, over \$2,000,000, since he has been in office. Mr. Taylor is a native of Brooklyn, and was educated in its public schools, and at the Polytechnic Institute. His business career has been varied and successful, a good many years of it having been in the banking business.

DEPARTMENT OF COLLECTION.

The collector of taxes and assessments is the head of this department. His duty is to collect and receive all moneys that may be due under any warrant delivered to him for the collection of taxes and assessments, and to pay the same to the treasurer of the city at once. R. Ross Appleton is at the head of this department at present, and he handles the affairs of the office in a most satisfactory manner. He has a large force of assistants and the work of the department, which calls for the most careful attention, is done in a most business-like manner.

DEPARTMENT OF ARREARS.

The duty of the registrar of arrears is to collect and receive all arrears of taxes, assessments and water rates, and to pay the same into the city treasury. He must also manage and control all matters relating to advertising and selling property for unpaid taxes, assessments and water rates and the redemption of property sold therefor. The head of this department at present is Henry A. Powell, whose official service is highly satisfactory to the taxpayers.

DEPARTMENT OF CITY WORKS.

This is the most extensive and perhaps the most im-

portant of the various municipal departments. The commissioner of city works has charge and control of all structures and property connected with the public water-works, the supply and distribution of water and the collection of water revenue; of the construction and maintenance of public sewers and drainage; of opening, altering, regulating, grading, regrading, curbing, guttering and lighting streets, flagging sidewalks and laying crosswalks; of constructing and repairing public roads extending beyond the limits of paved streets; of the care of public buildings and of offices and of the fencing of sunken lots and the fencing of vacant lots; of digging down lots, licensing of street vaults, cisterns and cesspools; of paving and repaving, and repairing and cleaning streets, and keeping the same clear of encroachments, obstructions and incumbrances; of digging, constructing and repairing wells and pumps; of making and preserving all surveys, maps, plans, estimates and drawings relating to the laying out and improvement of streets, avenues, roads and sewers, the construction, altering and repairing of public structures, buildings and offices. This department is divided into several bureaus, the heads of which are a chief engineer, a water purveyor, a water registrar, a superintendent of sewers and a superintendent of streets.

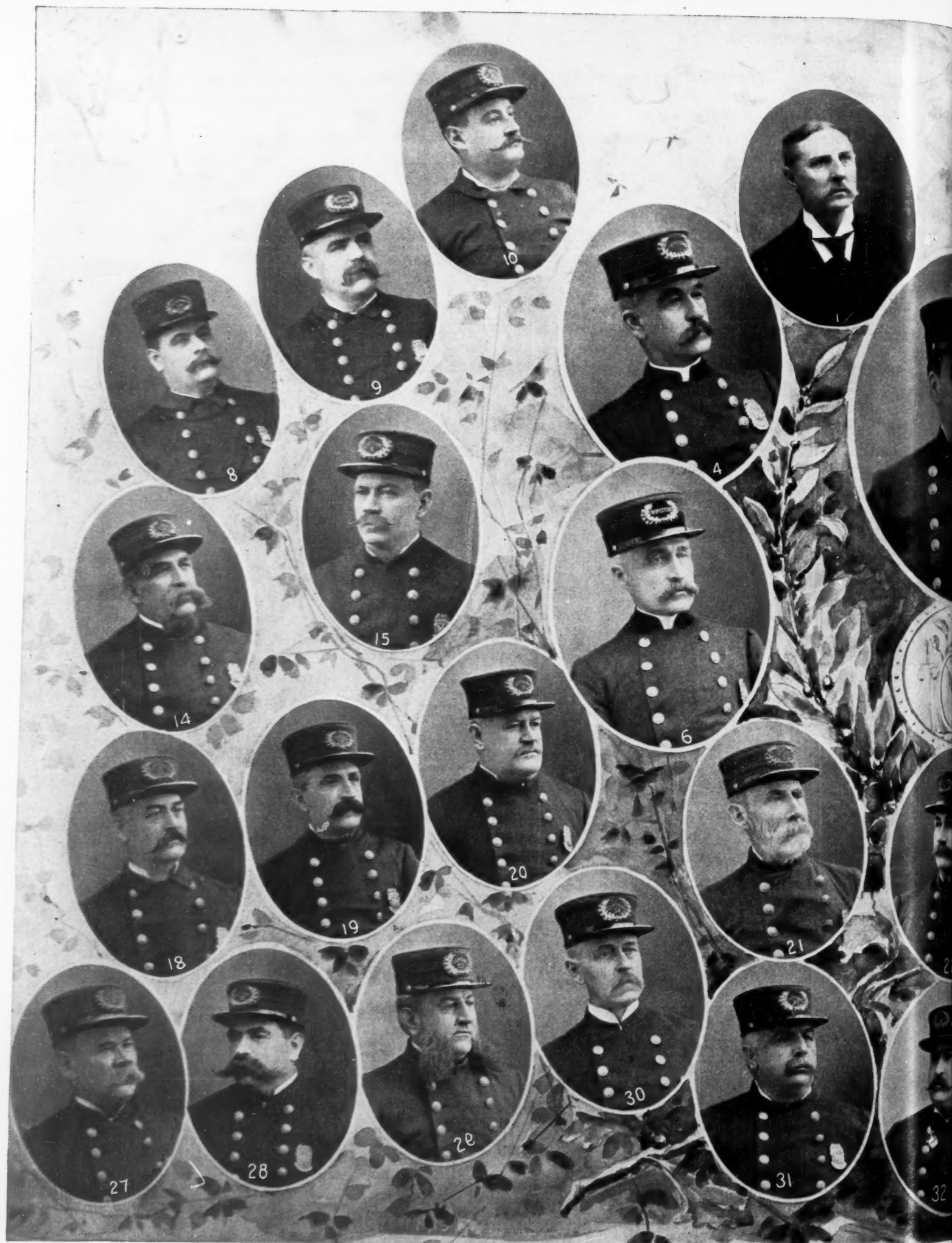
The present commissioner of city works is Theodore B. Willis, a well-known and successful business man, and he discharges the complex duties of his office with admirable judgment and thorough efficiency. I. M. deVerona is the chief engineer of the department, N. P. Lewis is engineer of the local improvement bureau, Wm. H. Goff is superintendent of sewers and Peter Milne is water purveyor. All of these gentlemen have had long and valuable experience and the affairs of their offices are kept in perfect shape. Fred. B. Backus is the competent accountant of the department of city works.

DEPARTMENT OF FIRE.

The Brooklyn fire department, by its perfect organization, splendid and well cared for equipment, strict discipline and general efficiency, reflects great credit upon the present fire commissioner, William Cullen Bryant, and his deputy, Clarence A. Barrow. The commissioner possesses full and exclusive control and management of all matters relating to the government and maintenance of the department and its property. The chief engineer of the department is James Dale, a veteran fire fighter and a man who understands his business thoroughly. There are two assistant chiefs, eleven district engineers, a fire marshal, an inspector, a superintendent of supplies and a superintendent of telegraph.

POLICE DEPARTMENT.

A great deal could be written about this branch of Brooklyn's government. While always commanding the confidence and respect of the community, and at all times keeping itself free from entangling alliances or scandals, it nevertheless, today, not alone occupies a foremost position among the various departments of the city government, but in the matter of discipline, morale and organization is more complete than at any time since it was formed. Its numerical strength is 1,894, distributed



2—Deputy-Com. George Crosby.
3—Superintendent Wm. J. McKelvey.
4—Inspector P. H. McLaughlin.
5—Deputy-Supt. John MacKellar.

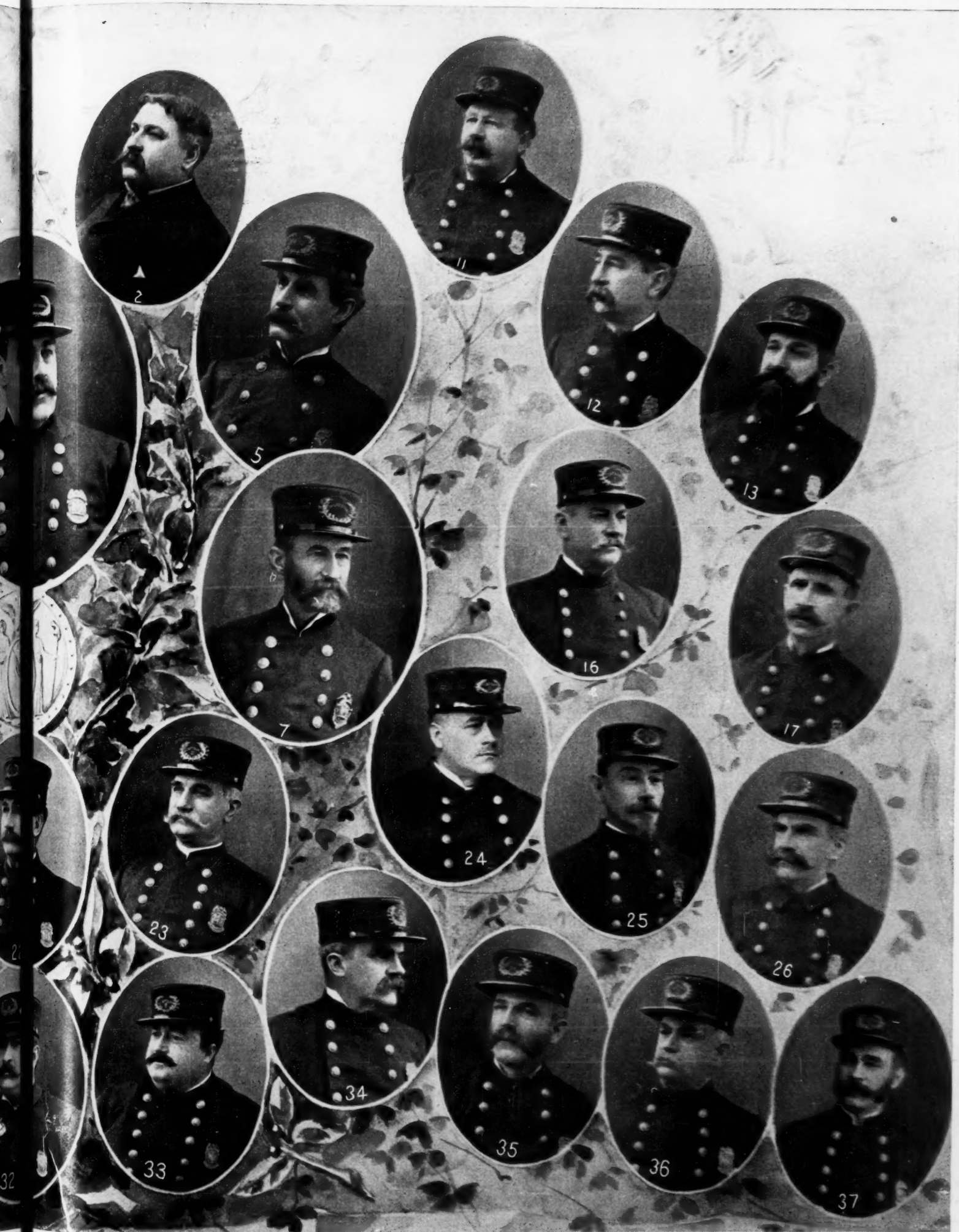
6—Inspector John Brennan.
7—Inspector Thomas Murphy.
8—Sergeant James P. White.
9—Sergeant Thomas Humphrey.

10—Captain Alex Lees.
11—Captain Geo. Buckholtz.
12—Captain Michael Campbell.
13—Captain Wm. H. Knipe.

No. 1.—COMMISSIONER LEONARD R. WELLS

14—Captain J. A. Corwin.
15—Captain Miles O'Reilly.
16—Captain Samuel Hardy.
17—Captain Jas. Ennis.

18—Captain Henry
19—Captain J. H.
20—Captain Hugh
21—Captain Geo. R.



WEES, BROOKLYN POLICE DEPARTMENT.

22—Captain Martin Short.
23—Captain James Campbell.
24—Captain Patrick Leavey.
25—Captain Wm. Kitzer.

26—Captain Wm. Burford.
27—Captain James Kenny.
28—Captain Dennis Driscoll.
29—Captain Edmund F. Brown.

30—Captain Edw. Dyer.
31—Captain James Dunn.
32—Captain Stephen Martin.
33—Captain Francis A. Early.

34—Captain John Eason.
35—Inspector Elias P. Clayton.
36—Captain Thos. L. Druhan.
37—Captain Thos. Cullen.

FROM COPYRIGHTED PHOTO BY H. HOLLER, BROOKLYN.

throughout twenty-nine precincts, one sub-precinct and six mounted squads. At headquarters are twenty-six men. The territory covered by this force of men is $65\frac{3}{4}$ square miles, housing 1,223,000 people, whose property interests aggregate over \$600,000,000. It will thus be seen that the responsibility of the Brooklyn police is enormous, and justifies the belief that too much is expected of the force as it stands at present. To its everlasting credit be it said, however, that notwithstanding its small relative force no great crimes or excessive violations have occurred here for many years.

Brooklyn's water front alone includes forty-eight miles of property, twenty miles of which are crowded with warehouses, storehouses, factories and mercantile establishments, yet very few robberies have occurred in them. The rapid increase in property along the water front, however, has impelled Commissioner Leonard R. Welles to ask the common council to provide the department with four steam launches, and at the last meeting of the council the recommendation was granted. The station houses recently constructed for the department have been truly designated as "in all respects adapted to the needs of a perfect police station." This is especially true of the houses in the ninth and twentieth precincts. They are not alone models of architectural beauty and construction, but in their design include every possible necessity and convenience for the uses of the men and the system. The plans were drawn under the personal supervision of Commissioner Welles, who is an architect of national reputation.

At the head of the department proper is William J. McKelvey, whose official title is superintendent. He was appointed to this office on March 2, 1895, and prior to this had been on the force thirty-two years. Much of the excellent discipline of the force is due to his methods. Through his recommendation the last legislature created the office of deputy superintendent, and Inspector John McKellar was promoted to the position. The great amount of office detail is thus divided and enables the superintendent to attend to other important duties connected with his office.

The salaries paid to the police department are: Commissioner, \$5,000; deputy, \$3,500; superintendent, \$4,000; deputy, \$3,500; inspectors, \$3,500; surgeons, \$1,500; captains, \$2,700; sergeants, \$1,750; detective sergeants, \$1,750; roundsmen, \$1,200; patrolmen, \$1,100, \$1,000, \$900 and \$800.

The department has one commissioner, Leonard R. Welles, who was appointed February 1, 1894. There is one deputy, George Crosby, who is also chief clerk. Infractions of the rules of the department are disposed of after a public hearing by the commissioner. No very grave charges have ever been made against any of the policemen.

DEPARTMENT OF HEALTH.

The head of this department, the health commissioner, has power to act in a legislative capacity in regard to all matters pertaining to public health, the removal and burial of the dead, the maintenance and operating of the ambulance service, the registration of births, marriages and deaths, the registration of vital statistics, and the

proper sanitary regulation of all buildings. No ordinance which has been passed by the common council at the suggestion of the health commissioner in regard to matters pertaining to the office can be repealed or amended without the approval of the health commissioner. It is the duty of the police commissioner to execute the orders of the health commissioner when so requested by him.

The present health commissioner is Z. Taylor Emery, M.D., and his deputy is R. M. Wickoff, M.D., both of whom are known to have acquired the highest knowledge in their profession. George E. West is the efficient secretary of the department.

DEPARTMENT OF BUILDINGS.

The commissioner of buildings, Wesley C. Bush, has the sole and exclusive management and control of all matters relating to the regulation and supervision of the erection, alteration and repair of all buildings within the city.

DEPARTMENT OF PUBLIC INSTRUCTION.

The public schools of Brooklyn are under the control of a board of education, consisting of forty-five members appointed by the mayor. The terms of fifteen of these expire on the first of July in each year. The board elects its own officers, makes its own laws, defines the duties of its officers and committees, and prescribes such laws for instruction and discipline in the schools as are not inconsistent with the laws of the state.

DEPARTMENT OF PARKS.

Until 1892 the control of the parks was in the hands of a board of three commissioners, but legislation in that year placed the department in the hands of a single commissioner. The present commissioner is Timothy L. Woodruff, one of the best known and most energetic and successful business men of Greater New York. He has the exclusive government, management and control, subject to the laws of the state and to the powers of the common council relative thereto, of all the parks, squares parkways and public places in the city. He has control of Ocean Parkway, from Prospect Park to the ocean, and also for the purpose of police and improvement of the ground of the parade ground in the twenty-ninth ward. The commissioner has the right to make ordinances for the management of the parks.

There are at present twenty-two improved parks in the city of Brooklyn, and nine others are now being laid out and beautified. The fame of Prospect Park, the chief pleasure ground of the city, extends throughout the world. Its situation, natural beauty, and artistic improvements may be regarded as unsurpassed. Prospect Park contains 516 1-6 acres, and the arch shown on the cover of this issue of CITY GOVERNMENT is at its main entrance.

DEPARTMENT OF LAW.

The legal department is a most important one, as it has charge of the vast law business of the municipal corporation. The corporation counsel is at the head of this department and he appoints all of his assistants. Joseph A. Burr, one of the ablest men of the New York state bar, is the present corporation counsel. His assistants are Albert E. Mudge, Wm. G. Cooke, Frank Sperry,



MEMBERS AND CLERKS OF BROOKLYN COUNCIL.

SAM'L MEYERS, Alderman.
J. R. CLARK, President.

WAYLAND SMITH, Deputy Clerk.
W. J. TAYLOR, Alderman.
S. E. THOMPSON, Alderman.

C. A. FRANCISCO, Alderman.
F. HENNESSY, Alderman.
E. L. STRYKER, Clerk.
W. H. LEAYCRAFT, Alderman.

D. W. WELTON, Alderman.
W. J. WASSMUTH, Alderman.
M. D. MESSENGER, Alderman.
J. H. RUGGLES, Alderman.
C. J. HAUBERT, Alderman.

M. F. CONLY, Alderman.
R. C. BACHER, Alderman.
A. H. LEICH, Alderman.
WM. KEEGAN, Alderman.

Michael Furst, Richard B. Greenwood, Jr., Alex. H. Van Cott, Rollin A. Breckinridge, Frank S. Angel and Herbert B. Brush. All of these assistants are gentlemen of high legal attainments and their important duties are performed in a way that gives the utmost satisfaction to the citizens of Brooklyn.

DEPARTMENT OF CHARITIES AND CORRECTIONS.

This department consists of three commissioners who have charge of the penitentiary, almshouse, hospital, nursery and morgue, and the commitment of children to the different institutions. This commission is also charged with many other duties connected with the relief of the poor and indigent of the city.

DEPARTMENT OF ASSESSMENT.

This department consists of a president and fourteen assessors, whose duty it is to make out the assessment lists and rolls for local improvements and taxes. B. G. Neff is the president of the department, and he has proved himself a most capable official.

BOARD OF ELECTIONS.

The board of elections consists of four members appointed by the mayor and known as commissioners of elections. The term of office is five years. Not more than two of the commissioners shall be of the same political party. It is the duty of the commissioners, on or before the first day of August, to alter or divide the existing election districts of the city when necessary, no district containing more than 300 voters, and to publish the same by keeping maps for inspection in the office of the clerk of the city, and also by posting copies in at least ten of the most public places in each election district, and also to furnish copies prior to every election to the registrars and inspectors in each district. They are required to publish in the corporation papers published in the city on the days of registration and election, and for two days prior to each of such days, the boundaries of each election district and the places for holding the polls and for the meetings of the board of registrars and inspectors.

The board have the appointment of registrars, inspectors, canvassers, poll clerks, and ballot clerks.

TOILET BOOTHS FOR CHICAGO.

Chicago is to have public toilet booths in its streets. Mayor Swift has long had in mind a plan to establish them in the downtown districts, much after the style now in vogue in the large cities of Europe. In London these booths are underground and a small fee is charged for their use. The plan has been successful there for years. In Paris and the large cities of France and Italy they are on the edge of the sidewalk at street intersections.

Mayor Swift has communicated his plans to Commissioner of Public Works Downey and they met with the latter official's hearty approval. City Architect Watson was instructed to prepare a set of plans for the improvement. He will sketch a number of different styles of booths and submit them within a few days. After the plans have been agreed upon the council will be asked to provide funds for the improvement. There is little doubt that the money will be forthcoming, and that before next

summer the booths will be built and in use. The idea is to have one at every street crossing in the downtown district. If the plan works successfully the system will gradually be extended to other parts of the city. It is estimated that to provide the downtown district with the booths will cost about \$25,000.

KINGS COUNTY OFFICERS.

The principal executive officers of the county are: register, county clerk, two coroners, commissioner of jurors, treasurer, public administrator, sheriff and district attorney.

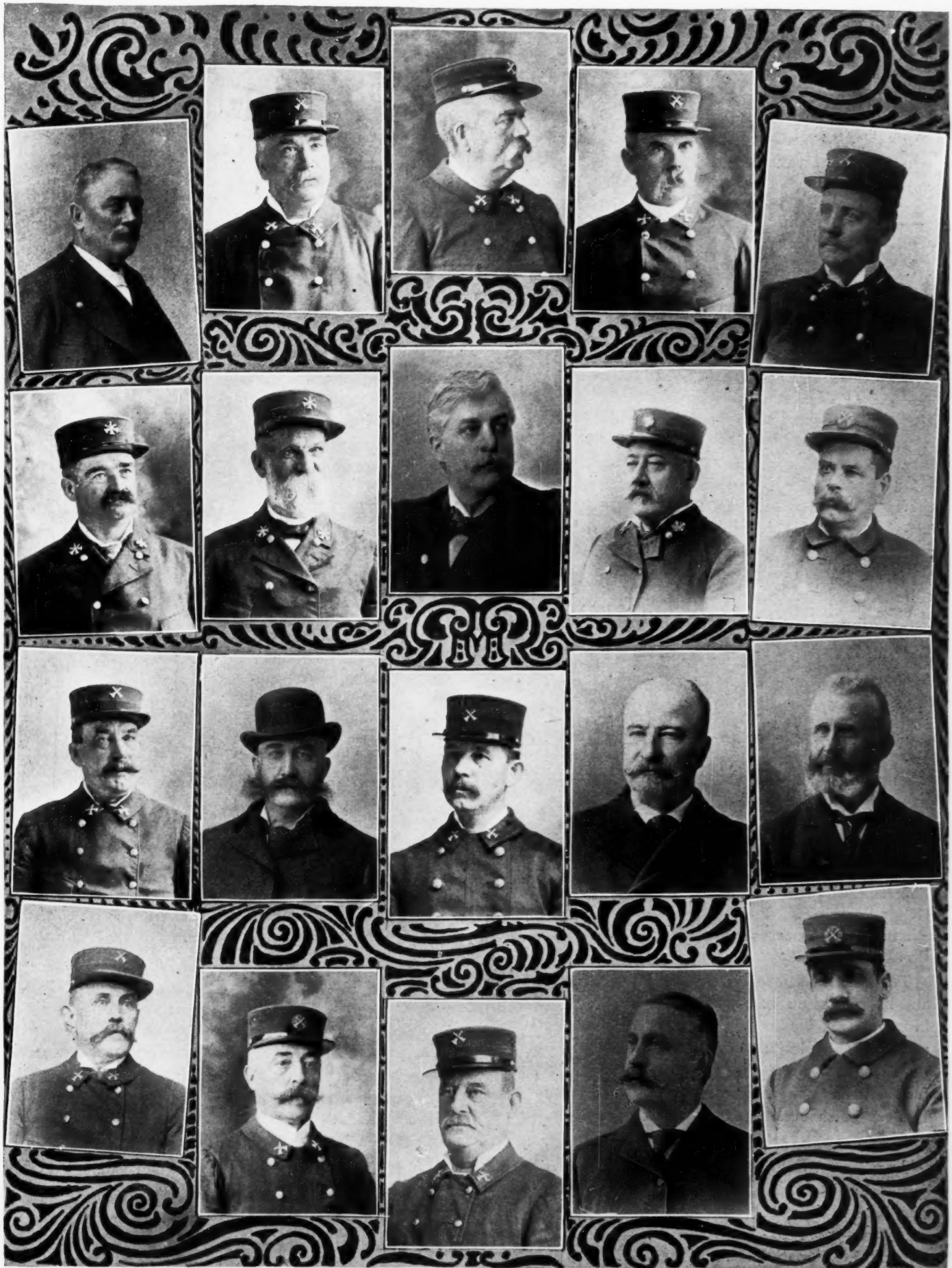
Edward B. Coombs, coroner, is a native of Brooklyn and a graduate of the University of New York. He is a physician of high rank and had established a very large practice when he was elected coroner in 1895. He has taken a very prominent part in the councils of the Kings county republican party for about ten years.



2. WILLIAM J. BUTTLING.

William J. Buttling, the popular and efficient sheriff of Kings County, is the second eldest of eleven children—seven boys and four girls. He was born and brought up in the fifth ward, and educated in the Brooklyn public schools. Not one of the Buttling family ever touched liquor, and the present sheriff is probably the first total abstainer to occupy that important office. Mr. Buttling is married and has a family of three charming girls. He lives at 214 High street.

—In Buda-Pesth the street railways pay street rentals; fares are fixed by law; working people carried at reduced rates morning and evening; at the expiration of the charters, street railway lines and their equipment become the property of the city without indemnity to private owners.



21 OFFICIALS OF BROOKLYN FIRE DEPARTMENT.

Top Row.—WILLIAM A. DeLONG, Surgeon; D. KIRKPATRICK, D. E.; J. FANNING, D. E.; D. McGROATY, D. E.; J. W. CONNELL, D. E.
 Second Row.—J. F. MOONEY, D. E.; J. H. PERRY, Ass't Chief; W. C. BRYANT, Commissioner; JAMES DALE, Chief; W. McCARTHY, D. E.
 Third Row.—J. DOYLE, D. E.; A. BRYMER, Marshal; P. NEVINS, Supt. Repairs; Dr. N. A. ROBBINS, Surgeon; Dr. J. E. SMITH, Surgeon.
 Bottom Row.—S. HEUSTIS, D. E.; E. H. HEARD, D. E.; J. CUNNINGHAM, D. E.; C. BARROW, Deputy Commissioner; S. DUFF, D. E.

CITY GOVERNMENT.

A MONTHLY MAGAZINE FOR CITY OFFICIALS AND OTHERS INTERESTED
IN MUNICIPAL AFFAIRS.

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NOTE AND COMMENT.

One way in which hundreds of our municipalities waste the taxpayers' money has been vividly illustrated at Toledo, Ohio. Alderman Kirk recently introduced a resolution in the council providing for the purchase of supplies for the various departments after the receipt of competitive bids. The resolution was adopted and the city clerk advertised for bids on all articles used by the municipal corporation. When these bids were opened it was found that there were tradesmen anxious to furnish supplies to the city at prices much lower than had prevailed. From the long list of items we quote only a few at random, to show the vast difference between former prices and bid prices:

	Former Prices.	Bids.
Iron man-hole covers.....	\$12 60	\$ 5 25
Iron catch-basin covers.....	18 00	7 50
Picks and mattocks, per dozen.....	5 00	3 25
Bridge brooms, per dozen.....	3 00	2 45
Lard oil, per gallon.....	55	35
Imperial tracing cloth, per roll.....	9 45	6 00
Higgins' drawing inks, per dozen bottles.....	3 25	2 25
Printing, monthly expense estimated.....	5 00	1 75
Printing sewer permits, per thousand.....	17 00	10 50

There is the same shocking disparity between former and bid prices on hundreds of other articles upon which bids were received. In the purchase of small articles, as well as in the letting of large contracts, public officials should exercise the shrewdest economy. If the Toledo plan of advertising for bids is adopted, thousands of dollars can be saved annually by any municipality.

Another straw to show the direction of the wind has just been observed in the air at St. Louis. The boating privilege in Forest Park has been held by William G. Buechner, ward politician and member of the house of delegates. For the privilege, Buechner was supposed to pay into the city treasury 30½ per cent. of his gross receipts, and last year he turned in the fabulous sum of \$256.94. This would indicate that the boat earnings amounted to less than \$1,000 a year. Recently the park

commissioner advertised for bids for the Forest Park boating privilege for four years, and Philip Assenmacher put in a bid of \$2,400.50 per year. The special significance attached to Assenmacher's bid is that for a long time he was in the employ of Buechner as his manager of the boat house. Assenmacher says the boats in the park will earn at least \$4,000 a year and he can well afford to pay \$2,400 a year for the privilege, despite the fact that Buechner has figured that \$256 is 30½ per cent. of the gross boat earnings per annum. Buechner may deny that he made a false return to the city until he is black in the face, yet the people will be inclined to believe that Assenmacher knows what that boating privilege is worth.

The Detroit citizens' public service committee of fifty, organized to watch the illegal acts of the city government, has engaged a lawyer and will fight the order of the common council to pay the two assistant boiler inspectors \$1,200 a year each. The board of estimates allowed them only \$800 each for this fiscal year. The ordinance of the council creating their offices fixes their salaries at \$1,200, and the council has determined to pay the difference out of the contingent fund. The citizens' committee claims that the council cannot spend more for a well-known purpose than was allowed by the estimators, and intend to make a test case of this.

The West End Street Railway of Boston has just issued an order compelling police officers to pay fares whether or not in uniform, when there are more than two officers upon a car at a time. A Cambridge officer, the day after the rule went into effect, was caught on car without any money in his uniform and forced to alight and walk. Naturally enough he was not in the habit of carrying money when on duty and he was very much embarrassed over the affair.

In the little city of Alameda, Cal., municipal ownership on a small scale has resulted in a material reduction of the tax rate. The city's electric light plant will turn \$12,000 profit into the city treasury, and this will make it possible to reduce the tax rate from \$1.24 to within the one dollar limit. The property owners out there are wishing that more of the city's needs could be supplied from municipal plants.

Tobias Mitchell is the name of an indiscreet young man who has lost his job by trying to make money. He was secretary of the St. Louis board of health and is said to have helped a certain company to sell a water filter to the board. He claimed that the filter company owed him \$150 commission; he was paid \$50 in cash and then sued the company for the remaining \$100. Result: newspaper reports of the suit and consequent retirement of Mr. Mitchell from office.

An interesting experiment is being made at Scarnton, Pa. It is a municipal employment bureau, where both applicants for employment and persons in need of help in their homes or business may register their wants without charge. The new department entails not one

cent of extra expense upon the city, except the trifling cost of a registry book. The bureau is in charge and under the control of the police department, and all the labor connected with it is done by officers already on the pay roll of the municipality. Thus the scheme will not involve the employment of extra help.

In the tower of the new city hall at Milwaukee will swing the third largest bell on the American continent. The names of all the city officials are inscribed on the bell, which also bears the following poetic effusion from President Baumgartner, of the common council.

"When I sound the time of day
From this grand and lofty steeple,
Deem it a reminder, pray,
To be honest with the people."

Colin M. Boyd, fire commissioner of San Francisco, and a member of the board of freeholders, elected to frame a new charter for the city, writes to the editor of CITY GOVERNMENT as follows:

Municipal reform is as greatly needed in San Francisco as it is in any part of the Union. We are trying to better the existing condition of affairs and hope to succeed by the adoption of a new city charter, to be submitted to the voters on the third day of November next. The board of freeholders who framed the instrument, had only eighteen days out of the ninety allowed by law, to complete their labors, owing to certain legal entanglements.

The charter drawn up by the board of which Mr. Boyd is a member, a copy of which is at hand, has many admirable qualities, but no charter can be so perfect as to insure good government. Incapable and dishonest officials will give incapable and dishonest administrations despite the most stringent of charter restrictions. American cities, as a rule, do not need charter legislation as much as they require the services of competent, conscientious men to conduct their business affairs.

In reporting the inspection of the fire department by the fire committee of the council, the Columbus, Ohio, Dispatch says:

The ignorance of the financial affairs of the department was illustrated while they were inspecting Front street engine house. On a table in the stock room were some of the new fire hats, the purchase of which was recently authorized by the city council. They examined the new fire helmets with curiosity, and finally one of the members of the fire committee wanted to know what they cost. This ignorance of the fire committee about things connected with the department is not confined to the present committee, but is simply in line with former committees. It is related that at one time a member of the fire committee of the city council lived within two squares of a fire engine house, but it was asserted that he did not know what the house contained, having never been inside of it and never shown any interest in it.

It has been the practice for heads of departments in the Detroit city government to send nominations of clerks to the common council for confirmation or rejection, and the aldermen have taken advantage of the system to secure places for friends; but the city's legal adviser has given an opinion that the practice is not required by law.

FIRE AND POLICE.

—The annual inspection of the quarters of the various fire engine companies of Columbus, Ohio, by the mayor, board of public works and the fire committee of the city council was held on September 18. The fire houses, apparatus and horses were found in excellent condition and the city officials were loud in their praise of Chief Heinmiller and his efficient department.

—Milwaukee is building a new fire department house for the accommodation of a new fire boat and its crew. The new structure will cost \$5,639.

—The local newspapers assert that the equipment of the fire department at North Adams, Mass., is inadequate. The city authorities are urged to secure new apparatus.

—Capt. Christian Schimmels, of engine company No. 5, celebrated the thirtieth anniversary of his connection with Chicago's paid fire department on September 25. Capt. Schimmels has served under every fire chief Chicago has had, beginning with M. P. Harris.

—A new \$10,000 engine house will be built at Buffalo immediately.

—The Kansas City council has increased the salary of the first assistant engineer of the fire department to \$140 a month, the second assistant to \$110, and the secretary to \$95.

NO HORSES NEEDED FOR THIS.

An inventor of Racine has secured a patent for a new bicycle fire engine which will be of value at places where there are good roads. The machine itself is very simple,



yet is a complete chemical engine. It is a three-wheeled affair, but otherwise is built much on the plan of the modern bicycle.

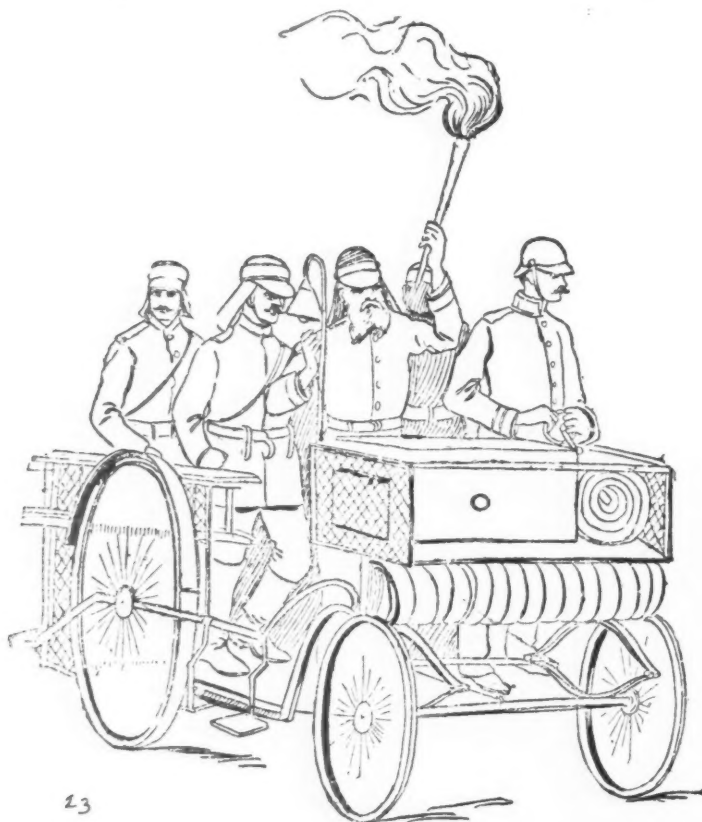
The seat and handle bars are arranged as on an ordinary bicycle. Between the two

forward wheels, resting on the axle, is a thirty-two gallon aluminum tank, in which is the chemically-prepared water for use at the fire. The tank is galvanized and made rust proof, and is covered with a heavy brass jacket. The machine is fitted with pneumatic tires and the frame is made of heavy bicycle tubing. At the top of the tank there is a pressure gauge. Fifty feet of hose is carried, the hose being wound around the tank. When ready for use the engine machine, without the rider, weighs 225 pounds.

Several tandem bicycle engines are now being built on the same lines. Each machine is equipped with lanterns, fire axes, crow-bars and pie-poles.

A NOVEL FIRE APPARATUS.

The Berlin Fire Department, which is considered the model fire department of Europe on account of its excellent organization, its great attention to the improvement of apparatus by carefully watching the progress of science, has but recently introduced for some purposes the Ganswindt motor carriage, which is propelled by foot power. The apparatus, after having been thoroughly tested, has been found to be very efficient, and is now being rapidly introduced into the fire departments of all the German capitals. A squad known as the advance guard, consisting of six men, is mounted on one of these motor carriages, which is always ready at the door of the fire station. The men are in their places ready to start at the first signal. The two first ones attend to its guiding, one



to the steering and the other to ringing the bell. The six men stand in pairs upon long treadles, and by alternately raising and lowering their feet, the movement is transmitted by means of strong belts upon a horizontal mechanism, the active power being considerably increased by spiral springs and ratchets, attached to the axis and by a very clever arrangement of the leverage. The entire motor carriage is built as lightly as possible of steel tubing and hickory wood.

The machine was for more than a month sent out with the regular fire patrol, and it was found that the carriage rides very easily and safely; that it proceeds faster than the patrol wagons, drawn by horses, and that if the distance is not entirely too great, the men arrive at the fire in excellent condition for their arduous duties. It was found that the men became very quickly used to treading in unison, so that even hills can easily be taken with this motor carriage. The steering apparatus is very effective, and the carriage may be turned in its own length. Upon it are carried the most important apparatus for first attempts to put out fires, as a stand-pipe chemical extinguisher, a

hose, hatchets, a number of short ladders and a list of all the hydrants of the city.

In experience it has been found that the machine is off long before the horses of the engine get into their harness. All the crew are picked men, experienced in their duties, and they can direct a stream of water up to a height of two or three stories from the hydrants, before an engine has time to arrive. There are six men constantly on duty with strict orders not to leave the carriage, while their term of duty lasts, so that at the first gong they can be off without a second's delay. In the strict carrying out of this order lies the immense benefit of their rapid appearance at the scene of a fire. The Berlin Fire Department considers this motor-carriage patrol as a valuable addition to their service, likely to be of considerable importance in the rapid putting out of small fires.

LIGHT AND WATER.

—Carroll, Iowa, streets are illuminated by seventeen arc electric lights, for which the city pays \$7 each per month. The lights are used from dark until midnight and from 4 A.M. until daylight during the winter months.

—The water rates fixed by the city of San Jacinto, Cal., under the new municipal water system, are as follows: For single family and not more than two animals, per month, \$1; each additional animal, 15 cents; hotel or boarding house, \$2; livery barn or stable, \$2; store or office, 50 cents; lawns not exceeding in dimensions 50 by 50 feet, 25 cents; lawns not exceeding in dimensions 50 feet by 150 feet, 50 cents.

—The village of Stockton, Ill., has let the contract for the construction of water-works to cost \$7,950.

—There is talk of constructing a municipal water plant at Dover, N. J. The city's contract with the Dover Water Company expires in November, 1897.

—A new link in the Boston water supply system will soon be built in the shape of an open channel three miles long from the Nashua River, through Marlborough, to Basin No. 5 in Southborough. The channel will follow the natural course of Stony Brook almost the whole of the way, and where the channel makes a short cut and leaves the old brook bed the brook will be diverted into the walled waterway. The channel will begin at the end of the Nashua aqueduct near Northborough station and lead down the brook valley at a grade of twelve feet to the mile. Two dams will be built to check the swift flow of the water, one near the lower end of the channel and the other two miles further up. The amount of earth to be removed is about 290,000 cubic yards. There are 300 cubic yards of rock to be blasted out, the whole cost of the work being estimated at \$80,000.

—Baldwin, Wis., will put in a system of water-works.

—The Indiana Natural and Illuminating Gas Company is after a five-year contract for lighting the streets of Frankfort, Ind. They offer 100 arc lights, of 2,000 candle-power, all night, every night, at \$82.50 per lamp per year.

—The Detroit water board has decided to lay 4,600 feet of 30-inch water main this fall, at an expense of \$28,000.

—Detroit's public lighting commission has decided to extend its system on Belle Isle Park this year.

—Philadelphia is considering a proposition to spend \$3,000,000 for water filtration plants.

NEW LIGHTING CONTRACTS AT ST. LOUIS.

Within ninety days St. Louis will let new contracts for lighting the streets. About \$300,000 is spent annually for public lighting in St. Louis and therefore the contracts to be let will be of importance. The new contractors will be required to place all wires underground. The prices paid for city lighting under the existing contracts are as follows:

EDISON ILLUMINATING CO., CONTRACTS 2,176 AND 2,178.

Streets, arc, 2,000 c. p., all night, per lamp, per year....	\$74.95
Parks, arc, 2,000 c. p., sunset to midnight, per lamp, May 1 to Oct. 31.....	39.90
Buildings, arc, 2,000 c. p., available at any time, per lamp, per year.....	51.25

LACLEDE GAS LIGHT CO. (ELECTRICAL DEPARTMENT) CONTRACT, 2,179.

Alleys, incan., 30 c. p., all night, per lamp, per year....	\$17.50
Parks, incan., 30 c. p., sunset to midnight, per lamp, May 1 to Oct. 31.....	3.37
Buildings, first-class, incan., 16 c. p., available at any time, per lamp, per year.....	20.00
Buildings, second-class, incan., 16 c. p., dark to midnight, per lamp, per year.....	6.02

MISSOURI ELECTRIC LIGHT AND POWER CO., CONTRACT 2,177.

Alleys, incan., 30 c. p., all night, per lamp, per year....	\$26.00
Parks, incan., 30 c. p., sunset to midnight, per lamp, May 1 to Oct. 31.....	20.00
Buildings, first-class, incan., 16 c. p., available at any time, per lamp, per year.....	9.50
Buildings, second-class, incan., 16 c. p., dark to midnight, per lamp, per year.....	7.00

The number of arc lights in service is about 2,500 and of incandescent lamps, exclusive of building lights, 3,500. All of these will be let in one contract under the new arrangement.

PUBLIC IMPROVEMENTS.

—Several streets in a residence district of Milwaukee will be paved with asphalt by the parties owning the property. A private contract for the paving, which is to be laid on a six-inch concrete foundation, has been let at \$2.06 a square yard.

—Cedar block paving is being laid on Fifth street, Milwaukee. The contract price is 98½ cents a square yard.

—The Breckinridge Asphalt Company has completed the improvement of Kentucky street from Third to Fourth, Louisville, with asphalt obtained in Kentucky. This is the first work of the kind ever done in Louisville. The work has not yet been accepted by the city, and after it is accepted a guarantee is given for five years. There has been some criticism of the work because the material appears too soft, but it is claimed by those putting it

down that it will get hard in a short time. Lum Simons, the representative of the Barber Asphalt Company, a competing firm, has put down an intersection adjoining the work at Third and Kentucky streets, free of cost to the city, to show the superiority of the Trinidad asphalt. Mr. Simons thinks his material ought to be put down instead of the home material, but in this he is not backed by the Board of Works, which desires that both classes of asphalt be given a trial.

—The Barber Asphalt Paving Company has been awarded the contracts for paving on Oak and Eighth streets and Brooklyn avenue, Kansas City. The company's bid on Eighth street was \$2.15 a square yard, and in the other cases \$2.12 a square yard.

—Brick paving is being laid at Springfield, Mass., for eighty-four cents a square yard.

—It is proposed to pave Eleventh street, from Forest to Garfield avenue, Kansas City, with asphalt on five inches of concrete.

—The Groton Bridge and Manufacturing Company, of New York, has been awarded the contract for the construction of a new bridge across the Arkansas river at Little Rock. The bridge will cost \$353,022.

—According to a new ordinance, laborers in the street cleaning department of Covington, Ky., will receive \$1.35 per day of nine hours.

—Biddle street, from Market to Broadway, Milwaukee, will be paved with vitrified brick. The lowest bidder for the work is J. O. Jones, at \$1.78 a square yard.

—An old cobble-stone pavement on Main street, Adrian, Mich., has been replaced by brick. A dance was held on the new pavement September 22, and the people indulged in fireworks, tableaux, etc.

—Vitrified brick paving, with sand filling, has been let at Hagerstown, Md., at \$1.43 a square yard; with cement filling, at \$1.50 a square yard.

—Troost avenue, from Twentieth to Twenty-eighth street, Kansas City, Mo., will be paved with asphalt.

—Asphalt pavement on concrete foundation, to the extent of 11,385 square yards, is being laid on Third street, one of the business thoroughfares of Milwaukee. The contract price is \$2.29½ a square yard.

CHEAP BLOCK PAVING.

The following paving contracts were let by the Milwaukee board of public works on Sept. 10:

Vliet street, from Thirty-first street to Western avenue, E. E. Naugle, cedar block paving, 93 cents a square yard; curbing 33 cents a lineal foot; sidewalk grading, 10 cents a cubic yard; sidewalk planking, 22 cents a foot.

Lisbon avenue, from Twentieth street to Twenty-fourth street, and Galena street, from Twentieth street to a half a block west, E. E. Naugle, cedar block paving, \$1.02 a yard; curbing 30 cents a foot.

Greenfield avenue, from First avenue to Eleventh avenue, E. E. Naugle, cedar block paving, 85 cents a yard; curbing, 30 cents a foot.

Prairie street, from Third street to Fifth street, William Forrestal, cedar block paving, 97 cents a yard; curbing, 45 cents a foot.

WILMINGTON'S INTERCEPTING SEWER.

BY T. CHALKLEY HATTON, M. AM. SOC. C. E., ENGINEER-
IN-CHARGE.

The Brandywine intercepting sewer, just completed, is the longest single sewer in Wilmington, being about two miles in length, and is the most important, although not of large dimensions. The city of Wilmington is built upon a peninsula bounded upon one side by the Christina River, which is about 300 feet in width, and navigable for several miles above the city, and upon the other side by the historic Brandywine River, which is about 300 feet in width, but not navigable. The ground between these two rivers is very hilly and undulating, rising to a height of 240 feet above the water in the rivers within a distance of one and one-half miles. The Delaware River, into which these two rivers empty, is about one mile east of the city, a low marsh lying between. The latter river is about three miles wide, and navigable for the largest vessels afloat, the rise and fall of the tide being about 5.8 feet.

The sewerage system, as designed and partially built within the city, is the combined system, carrying both house sewage and storm water in the same sewers to a point upon the bank of the two rivers bounding the city, where the house sewage is intercepted and turned into sewers, called intercepting sewers, which are built along the banks of the rivers deeper than the combined sewers. Thus the liquid filth from the city is prevented from being discharged into our abounding streams, where the rise and fall of the tide, and consequent exposure to the sun and air of the mud flats, would be a menace to the public health. This filth, through these intercepting sewers, is carried down to the Delaware River, discharged at the beginning of ebb tide, and thus carried below the point of endangering the pollution to our abounding streams.

The question naturally arises as to how we separate the sewage from the storm water when both are mingled together in the same channels. This is done by an auto-

through this opening into the sewer below. When the quantity of water coming down the combined sewer reaches a certain depth, its velocity is, of course, augmented so that the whole body jumps entirely over the opening and is discharged into the nearby river. During the time of this increased velocity some sewage also gets into the river, but at the time the river is so augmented in volume by the rain above that the sewage thus discharged into it gets to the Delaware River before settling. This also provides against the overtaking of the intercepting sewers. This interceptor is not an original one with me, but was designed and used by Baldwin Latham in his European practice, and although I have designed and used many other forms, this one seems to be the best that I have found for the purpose.

The Brandywine intercepting sewer is built of brick in old form egg shape, two feet four inches by three feet six inches, and two feet two inches by three feet three inches in diameter, on a grade of one foot in 500 feet, and one foot in 800 feet, respectively, for one-half its length, the other half being built of terra cotta pipe laid in concrete, and of twenty-four-inch, twenty-inch, and eighteen-inch diameter, on a grade of one foot in 300 feet, 142 feet and 100 feet. It has been built along the rocky and precipitous banks of the river, the rock cutting being in some places over 20 feet in depth. As the flow line of the sewer was below the level of the water in the river, the water from the river poured into the trench in great volumes through the fissures made in the rock by blasting. The cement work was built very dry, however, as water-tight work was insisted upon even though somewhat expensive to obtain.

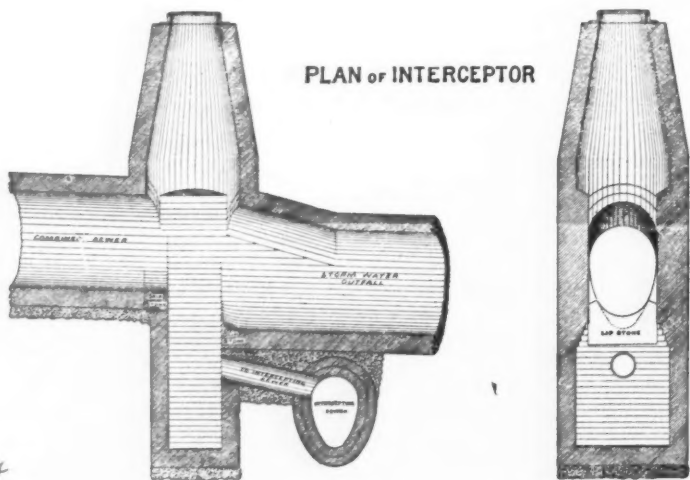
The flushing of this sewer was a very simple problem, as it was connected with the river at numerous places by a pipe, with a stop on the end, through which the river water might be made to flow into the sewer at will. The velocity of flow in the sewer when filled to the spring line has proven to be four and one-half feet per second, sufficient to keep it as clean as could be desired.

This sewer drains 790 acres of ground, and is provided for carrying the sewage from a population of 31,000, and a rainfall of one one-hundredth of an inch per hour per acre, which represents the street scavenger work done by a rainfall.

The sewer has cost up to date \$60,410, and when carried to the Delaware River it will cost \$32,000 additional. The whole sewer system designed by me for the city will cost, when completed, \$1,741,000, about \$600,000 already having been expended.

STREET CLEANING DEVICE.

The electrical newspapers have given some prominence to a street sweeping device intended to be operated on trolley car tracks, which is claimed to have stood the test of actual trial, although the facts and figures of such trial are not available. It has been estimated that in New York alone the operation of such street sweeping cars would save the city \$1,000,000 a year in the matter of cleaning, besides having the work done more perfectly, more quickly and with less annoyance to the community. The new self-loading car works by electricity, sweeping the dirt up, carrying it away and dumping it mechanically. In appearance the cart is a combination of the ordinary



matic device shown in the accompanying cut, which shows the combined sewer, storm-water outfall, and the intercepting sewer below, with an open space between the combined and outfall sewers, by which advantage is taken of the combined effect of horizontal projection and gravity upon a stream of water issuing from an orifice. We can by this device so arrange the width and depth of this opening as to allow any quantity of water desired to drop

trolley and railway freight car, the operators being seen at the front and rear, much the same as a motorman and conductor of a street railway. And so perfect is the unseen machinery of this car that these men seem to have very little to do, even when the sweeping and carrying away of dirt is being done. The invention is constructed to be operated much the same as a trolley car, being run on an electric line where it exists, but being also fitted with the proper motor, so as to run on any tracks. The idea is to sweep the street from curb to curb inwardly toward the tracks, then when the self-loading car passes over the tracks at any desired speed it takes up the refuse and conveys it to any desired location. The new car is twenty-two feet long, eight feet wide, and nine and one-half feet high, being compactly and strongly built. Three large rotary brushes placed across the centre of the car do the sweeping and loading, working on much the same principle as a carpet sweeper, and are covered with steel casings, which have proper outlets for discharging the sweepings into the body of the car. The brushes make five revolutions to each one made by the car wheel; this high brush speed forming a powerful suction, which takes up all refuse matter and deposits it into the body of the car, which has a loading capacity equal to 50 carts.

IMPROVEMENTS IN PARIS.

It is intended to carry out a good deal of work in the way of sanitation and embellishment of Paris, in view of the 1900 Exhibition. Besides the formation of some new streets, the municipal authorities are proposing schemes for adding materially to the trees and gardens within the city. New squares are to be formed in front of the churches of St. Philippe du Roule and St. Laurent, in Rue Ste. Marguerite, on the site of the Trousseau Hospital (which is to be demolished), on the Place Hebert, and on the rising ground at Belleville. The Champs Elysees will undergo quite a transformation. Five hundred thousand francs are to be spent on improvements in the Bois de Boulogne, and 900,000 francs on the Bois de Vincennes. Improvements will also be carried out in the Parc Monceaux, the Buttes Chaumont and the Parc de Montsouris. Electric lighting is to be introduced in all the principal streets as well as in the Bois de Boulogne; the whole of the work of this kind to be carried out representing an expenditure of more than 4,000,000 francs.

SCHOOLS AND LIBRARIES.

—The new public library building at Hoboken, N. J., will be completed by the end of the year. Librarian Hatfield is justly proud of the new structure.

—M. Taylor Pyne, a graduate of Princeton, class of '77, has given to that college the sum of \$600,000 for the erection of a new library building.

—A scheme which may be regarded as an advance over the vacation school system has been adopted in Switzerland and other European countries. It is the vacation colony for poor boys and girls. The United States con-

sul at Zurich describes it in his recent report. Last year 2,198 children, divided into seventy-three colonies, had vacations in the country. The children are accompanied by their teachers. Means of maintenance are furnished principally by voluntary contributions, but the general and municipal governments also assist to some extent. The children are benefited physically and morally, and the sick are cared for at a regular sanitarium. The movement has extended to Germany, France, Austria and even Russia. On the American continent the Argentine Republic has lately begun the experiment with considerable success. In Germany 125 cities have adopted the system, and the children cared for last year numbered nearly thirty thousand.—Chicago Post.

—The new Detroit high school is to have a room for the accommodation of 300 bicycles.

—Enoch Pratt, founder of the great Baltimore public library which bears his name, died on September 17, in the eighty-ninth year of his age. For the public library Mr. Pratt gave the city of Baltimore the sum of \$1,145,833.33.

—The council and the board of education of St. Paul have decided to discontinue the night schools. This action was taken because it was claimed that the night schools were not productive of good in proportion to their cost. As these schools cost only about \$6,000 a year, it seems that they should have been "productive of good in proportion to their cost," if they afforded educational opportunities to but very few young people.

—The annual shortcoming of the Boston school accommodations is very much in evidence this year. Several thousand Dorchester children are unable to attend school, and they will probably not be provided for until November. The responsibility is tossed back and forth between the mayor and school board, and no one seems to see clearly whose fault it is.

OMAHA LIBRARY REPORT.

The nineteenth annual report of the Omaha city librarian is out. He reports the library building has been maintained in good condition during the current year. The statistical portion of the report shows there are now in the library a total of 51,793 volumes, of which 3,282 were added during the past year. During that time 3,689 volumes have been sent to the bindery and of that number 3,612 have been returned rebound. There has been a total of 1,827 books lost or discarded.

During the year the library was open 303 days and there were taken out for home circulation 215,752 volumes, as against 226,119 during the previous year, and 220,982 the year before that. There has been taken out of the juvenile department an average of 205 volumes daily since it has been opened.

There have been 22,645 visitors to the reference room during the year, an increase of 6,129 over the previous year. The reading-room was open 356 days during the year, and 49,080 people visited it during that time. One hundred and thirty periodicals are received regularly in this department.

There have been 43,621 library cards issued, of which 2,566 were issued during the past year.

The total expense of the library for all purposes during the year has been \$17,255.25.

The board approved the recommendation of the secretary that an alcove be set apart for the department of genealogy. A number of valuable books have recently been donated to this department.

The board ordered canceled old fines dating back to September, 1895, to the amount of about \$400, and ordered that hereafter the rule be strictly enforced debarring persons from the privileges of the library while there were unpaid fines standing against them.

IMPORTANT EDUCATIONAL REPORT.

Kansas City's public schools have been highly honored and given an international prominence by the commissioner of education, W. T. Harris, in his report for the school year 1893-4, the first volume of which has just been issued. Chapter 14 contains sixty pages of stenographic recitations from the public schools of this city. This is the first time in the history of the United States that such a report has ever been made, and it is rendered doubly valuable since the commissioner of education publishes the chapter as a supplement to the report of the committee of fifteen, which was appointed in 1893 by the National Educational Association of America to make a report on the graded schools of this country. The committee of fifteen was divided into three sub-committees, each sub-committee consisting of five members. One of these made a report on the training of teachers; another on the election, duties and functions of the boards of education, and the third on the course of study for city schools and the educational values of the branches to be taught.

The last sub-committee had the most important, as well as the most difficult task to perform, and its report is regarded as one of the most important educational documents ever published. The committee was composed of W. T. Harris, of Washington; Superintendents Greenwood of Kansas City, Gilbert of St. Paul, Jones of Cleveland, and Maxwell of Brooklyn. Superintendent Greenwood differed materially from the other members of the committee regarding the study of arithmetic. He held that the old idea, that a pupil on entering school was only capable of mastering the first ten whole numbers in arithmetic during the first year, was erroneous, and stated that the child was as able to master a fractional number as a whole number. For instance, that he was as able to grasp the idea of what half an apple was as what the unit or whole apple meant. As proof of his assertion he stated that by the system employed in the public schools of Kansas City, the pupil was able to take up the study of fractions as soon as he entered school. Recognizing that the knowledge of such a system was of worth to the schools all over the country, and to satisfy himself that it was practicable, Commissioner Harris requested that he be furnished with a stenographic report of recitations in arithmetic as they occurred in the class-rooms of the Kansas City schools. This was done, and the accounts of the recitations of the pupils in the lower grades of the schools, as furnished by Superintendent Greenwood, have been published verbatim. The recitations, as they occur in seventeen of the ward schools, the names of the teachers, and of many of the pupils reciting, are given in full.

As an example of the recitations as they appear in the volume, the following will suffice:

Jefferson School—Miss Spencer, teacher (Class A pupils have been in school seven months). Teacher: "You may tell me what part $\frac{1}{3}$ is of $\frac{3}{4}$. Illustrate."

The pupil draws a square on the blackboard and divides it into four squares of equal size. In three of these he puts the fraction $\frac{3}{4}$, and in the remaining square 0. Then he divides each of the three small squares into equal parts, and in each of the equal parts places the fraction $\frac{1}{3}$. He then sees that he has six of the fractions $\frac{1}{3}$ in $\frac{3}{4}$ of the whole square, and readily answers that $\frac{1}{3}$ is $\frac{1}{6}$ of $\frac{3}{4}$.

This illustrated system of teaching fractions to the pupil during his first year in school has been practically demonstrated in the public schools of Kansas City as a correct theory, and, by the national recognition given it by the commissioner of education, it bids fair to revolutionize the old system all over the country.

TAXES AND FINANCE.

—Auditor Broderick, of the city and county of San Francisco, has just issued his report for the fiscal year ending June 30, 1896. The report shows the total expenditures of the city and county for the year amounted to \$6,577,248.45, as against \$5,568,827.21 for the preceding year. Expenditures of principal departments were as follows: Fire, \$948,881.84; public library, \$45,113.40; health, \$60,588.45; city and county hospital, \$62,248.06; park improvement, \$302,146.80; police, \$818,599.64; schools, \$1,144,061.04.

—The assessed valuation of taxable property at De Pere, Wis., is \$829,820.

—The new assessment at Cohoes, N. Y., shows a total valuation of \$11,227,642, an increase of \$122,022 over 1895.

—It is stated on good authority that the city of Brooklyn will issue no more bonds until after the presidential election.

—The new assessment at Oshkosh, Wis., shows a total valuation of real and personal property of \$8,947,407, a gain of \$98,219 over the preceding year.

—The banks of St. Louis bid higher than usual for city deposits this year. The highest bidder was the Merchants'-Laclede National Bank, which bid 4.11 per cent. The Commercial bid 4.10 per cent.; Boatmen's, 4 per cent.; American Exchange, 3.97 per cent.; Continental National, 3.71; Chemical National, 3.52½, and the National Bank of Commerce, 2 per cent. Each bank gets a deposit of not more than \$500,000, the current accounts being drawn from the bank paying the lowest rate. The highest interest paid for the year ending Oct. 1, 1896, was 3.65 per cent.

—The new assessment at Green Bay, Wis., shows the total valuation of real and personal property at \$4,190,613, an increase of \$162,519 over the preceding year.

THE SYRACUSE BUDGET.

Here is the tax budget of Syracuse, N. Y., for the fiscal year 1896:

Interest on bonded debt.....	\$ 91,020 00
Board of education.....	286,196 43
Funded debt bonds of 1894 due February 1, 1897,	1,000 00
School bonds due July 1, 1896.....	20,000 00
For water dues to January 1, 1897.....	60,000 00
Library fund.....	10,500 00
Police department.....	83,000 00
Fire department.....	105,000 00
For city parks.....	15,000 00
For street lighting.....	90,000 00
For contingent fund to pay the interest on temporary loans, judgments and adjustments of claims, the expense of the board of health, Police court, the Municipal court, the poor department, salaries, election expenses, veteran relief and all the other miscellaneous expenses of the city.....	145,283 57
For highway fund.....	70,000 00
For city's share permanent improvements.....	30,000 00
For city map (chap. 228, laws of 1895).....	5,000 00
For Gifford street bridge (chap. 705, laws of 1896)	9,000 00
For bridge Cortland avenue (chap. 695, laws of 1896).....	10,000 00
For hose house, Eleventh ward, (chap. 702, laws of 1896).....	5,000 00
For hose house, Twelfth ward, (chap. 703, laws of 1896).....	5,000 00
For hose house, Fifteenth ward, (chap. 770, laws of 1896).....	5,000 00
For Salina street bridge (chap.—, laws of 1896).....	18,000 00
Total.....	\$1,064,000 00

The tax rate will be \$15.95 per \$1,000. The rate in 1895 was \$14.75, and in 1894, \$18.16.

CINCINNATI LEVY REDUCED.

The average tax levy at Cincinnati for the past ten years has been \$16.64 on a valuation of \$1,000. For 1896 the levy is fixed at \$15.76. The reductions in the levy for the year 1896, as compared with that of 1895, are as follows:

	For County Purposes. Mills.	For Municipal Purposes. Mills.	Total Mills.
1895.....	3.95	17.01
1896.....	3.36	15.76
Reduction....	.59	1.25	1.84

The increased levies for the year 1896, as compared with those of 1895, are as follows:

	For State Purposes. Mills.	For Educational Purposes. Mills.	Total Mills.
1896.....	2.84	4.53
1895.....	2.75	4.43
Increase.....	.09	.10	.19

A net reduction in levy for year 1896 of 1.65 mills.

The reduction means a saving to the taxpayers of \$320,595, as figured from the grand duplicate, which amounts in all to \$194,300,000.

The biggest cut made by the auditor and board of su-

pervisors was in the estimate of the fire department. The trustees asked for an appropriation of \$715,045.50, in which were included the pay rolls, several new houses and new apparatus. The estimate was reduced to \$467,045, which is an increase of the current year of \$37,199, which is now thought will be sufficient to inaugurate the new improvements. The reason for not allowing the original estimate was because the auditor figured it best to allow the cost of new improvements to be divided over a period of years, and thus not compel the taxpayer of to-day to bear the whole burden.

PARKS AND BOULEVARDS.

—The commissioners of Fairmount Park, Philadelphia, have asked councils for an appropriation of \$813,000 for the ensuing year. An important item in the park budget is \$25,000 for the construction of bicycle paths.

—A natatorium is to be constructed in Humboldt Park, Chicago.

—Palmer Park, 120 acres outside of the city limits, but belonging to Detroit, now has a number of wells, and the electrical pumping works have a capacity of 1,000,000 gallons daily.

—The city bath-house at Belle Isle Park, Detroit, did not pay expenses during the season that has just closed. The total number of bathers was 50,585.

—A new office has been created in Boston. It is that of superintendent of parks, with a salary of \$3,000 a year. Charles E. Putnam has just been appointed to the office by the park commissioners.

—The contract for the building of the North End Pleasure Ground in Boston has been awarded to Perkins & White at their bid of \$23,000, the lowest submitted. The park is located on the northern slope of historic Copp's Hill, adjoining the old burying-ground on one side and overlooking the harbor on the other.

BOULEVARD IMPROVEMENT AT BROOKLYN.

The extension of Eastern Parkway to Ridgewood at Highland Park, Brooklyn, which has been agitated so long, is about to be made, and will be one of the greatest improvements Brooklyn has had for some time.

The entire width of the Parkway will be 110 feet, including two sidewalks, each twenty feet wide. The roadway will consist of a central section of macadam, thirty feet wide, and two side strips of vitrified brick, each twenty feet in width. At least, this will be the case with the western and middle sections. On the eastern section there is a considerable grade all the way, and the proposals for this part of the work call for a vitrified brick pavement east of Bushwick avenue.

A feature of the eastern section that is of special interest will be the steel viaduct by which the Parkway is to be carried over Vermont street.

—The Detroit council's ordinance committee has decided to report against passing a bicycle ordinance.

WATER FILTRATION IN EUROPE.

BY WILLIAM A. GILES.

The problem of an ample supply of pure water is a vital one in every large city. It is especially pressing in Chicago, Philadelphia, and the western cities taking their water from the great rivers. The increase of population and manufacturing upon the banks of the rivers and lakes will increase the danger and difficulties of the situation.

It is generally believed that the completion of the drainage canal will remove all risk of contamination of Chicago's water supply, but I think this belief will prove not to be well founded. The water will gather impurities from various sources, and at times the risk will be too great to be taken in so large a city as Chicago. Every well informed physician who has given much thought to the matter knows that the death rate (and sickness) from typhoid and intestinal complaints has been a subject of serious consideration and is at times alarming. If you will take the trouble to examine the reports and diagrams in the health commissioner's office you will observe that when the lines showing the impurities of water go up, the lines denoting the cases of death and sickness go up in proportion.

In this connection I think the experience of Hamburg, Berlin, Buda-Pesth, and other large cities will be interesting and instructive. That of Hamburg may be found the most so, as she has the most perfect system of purification now in use.

If I may be pardoned a slight diversion, I would say that Hamburg is a magnificent city, the second in the German empire, with a population of 600,000, and has a marvellous ocean and inland commerce. Her two great American steamship lines (and many smaller ones) have done much to build up an extensive trade between the United States and Germany and other North and Baltic Sea countries, and probably have done more to promote the emigration of desirable citizens to our country than has any other one agency.

This trade has been one source of her wealth and commercial importance, but her intelligent and enterprising merchants have been equally energetic and enterprising in other directions. In her magnificent harbor, on which more than \$40,000,000 has been expended, and which far surpasses those of Liverpool and New York, one may see at one time 400 great ships loading and unloading merchandise from all the principal ports, not only of North America, but of China, Africa, Australia and South America. No such spectacle may be witnessed elsewhere in the world. Hamburg for a long period of time was a free and independent city, the most influential of the Hanseatic League, which dominated the commerce of Northern Europe for centuries. Recently she has been incorporated into the German Union. Through this customs union her prosperity has been enhanced, but her independence in no wise interfered with. She is a picturesque and beautiful city, with varied landscape of water and wooded hills, and has sixty parks and more beautiful residences than I have seen in any city of her size. Her municipal affairs are wisely and well administered, substantially by her mer-

chant classes, and most ample provision has been made for the instruction, amusement, health and general welfare of her common people.

The city-state (in her thirty square miles of territory there are only 50,000 inhabitants outside of the city) is governed by a council (house of burgesses) of 160 members, but the executive business is carried on by eighteen senators, chosen by the burgesses. These are generally men of great experience and learning. Nine out of the eighteen must have been educated as lawyers or financiers and of the remaining nine seven must belong to the association of Hamburg merchants. One half of the general council is popularly elected by the male tax-paying citizens, and the other half by a complicated system, which I will not here take time to describe in detail, but will say that the householders and men of learning and training have a preponderating influence. As in most European cities, tramps and paupers are excluded from the control, or balance of power, in the government of the city.

To come back to our subject, Hamburg, like Chicago and many of our river towns, had not within reach any mountain or lake source of pure water, and up to 1892 was mainly supplied with that taken from the River Elbe. This river water was unavoidably polluted by refuse and sewerage of the city, which was thrown back by the tide. The sanitary condition of the city was extremely bad. Then came the terrible cholera scourge of 1892, which gave the world such a scare. In the city there were 11,000 cases and 6,000 deaths. It was proved beyond doubt that the disease had been caused by the use of the impure water of the Elbe. Work had already been begun on the filtering plant, but this was not to be completed until 1894 or 1895. The task was, however, pushed through with great vigor, and finished in time to prevent the dreaded return of the epidemic in 1893, and it may be said this has freed the city from danger of any further outbreak.

I can here only most briefly describe the process and methods of the filtration in Hamburg, and allude to the similar systems adopted in most of the other large cities. The water is pumped from the River Elbe, at a point three or four miles above the city, and into the large open settling basins. These are constructed on the lowlands on the banks of the river, in an entirely uninhabited district, partly surrounded by water. After settling, the water is conveyed by a large conduit to a point about one and one-half miles nearer the city and into sand filtering basins. There are twenty-three of these, each covering about two acres and constructed on the most scientific principles. The foundation, with the underlying conduits, is built of brick and iron pipes, perforated with holes for carrying off the water. Then, first, comes a layer of large cobble-stones, then one of smaller ones, next one of coarse gravel, and finally a covering of sand, making, altogether, five feet. Upon this water to a depth of three feet flows. The top of the sand soon becomes covered with a dark, green scum. This coating, however, is the most effectual screen of all; when it becomes foul, it is taken off to the depth of about half an inch, and cleansed, and the filter recovered with fresh

sand. Each basin is in turn emptied and cleaned in this way, by forcing the water through the filter, by means of the discharging pipes and conduits.

However impure the water may be when it goes into the filter it comes out as clear as crystal and entirely free from all impurities or dangerous disease germs. After the water has been filtered it is carried by a large iron pipe to the covered reservoirs near the pumping works, and from there forced to all parts of the city. While the unpurified water contained from 30,000 to 100,000 cholera bacteria to half a thimbleful of water, the filtered water at times shows none, and at other times from 20 to 100 (to the cubic centimeter of water), but this is not considered dangerous. The imperial health commissioners of the city of Berlin issued a warning to the German cities not to permit the use of water containing more than 200 bacteria to the centimeter.

The well-known expert, Dr. Frankland, says: "A single drop of the unfiltered Thames (London) water occasionally contained 3,000 separate living organisms, but after filtration it was absolutely pure or contained not more than two or three organisms."

Hamburg has established in connection with her sanitary works a hygienic institute and chemical and bacteriological laboratory, which is under charge of our very able fellow citizen, Professor Dunbar, of St Paul.

The water in the river, and that in the reservoir, and that delivered to the citizens is carefully tested every day. The sanitary work of Hamburg has reduced the death rate from that formerly prevailing about 20 per cent., and it is safe to say that it has worked a great improvement in the health and vitality of her people. This is an economic gain, because it has increased the vigor and productive power of her citizens.

Buda-Pesth, now having a population of over 600,000 inhabitants, has, by her sanitary improvements, reduced her former annual death rate of 40 per 1,000 inhabitants to less than 24.

Berlin no longer draws her water from the river Spree, but takes it from lakes, one about ten miles to the northwest of the city and the other seven or eight miles to the northeast. The water is all carefully filtered before being sent to the city. Her filtering works are similar to those of Hamburg. The new plant at Frederickshagen has some slight improvements on that in Hamburg. The filtering basins are covered with brick arches overlaid with a layer of grass-covered earth. This keeps the water cooler in summer and prevents it from freezing in the winter, besides protecting it to some extent from outside contamination. However, the engineer at Hamburg told me that they had no serious difficulty with their basins, which are not covered, in the winter, although sometimes ice formed there to a thickness of forty inches.

The filters in Copenhagen and Stockholm, where the winters are fully as severe as ours, are not covered. Those in Buda-Pesth are covered by cheaply constructed wooden sheds resting on brick piers. These protect the water from pollution, from heat of the sun in summer, and, to some extent, from freezing in winter. Buda-Pesth has a changeable climate, not unlike ours, with extremely warm summers and cold winters.

Paris draws her water from mountain springs more than 200 miles away and at present does not filter it, but the surrounding towns and cities, which cannot afford such expensive plants and which have no good source of supply at hand, have suffered very greatly, but a water company (Compagnie Generale des Eaux), which has the distribution of water in Paris, has a special concession from the government, and has just completed a splendid filtration plant for supplying these towns and villages. It is located on the river Seine about ten miles above Paris, where it takes its water. This company supplies about 120 towns and villages, with a total population of about 1,000,000. One of these towns, Versailles, has 60,000 inhabitants.

Two other similar plants are under construction now. The process here differs slightly from those of Berlin and Hamburg, being substantially what is known as the Anderson rotary system. In this method considerable iron is used.

The water is first pumped from the river into large revolving cylinders, which carry it rapidly through and over the iron held in them, and where it is slightly charged with carbonic acid gas. The water then flows out in little cataracts into the open air and is carried backward and forward through parallel viaducts, a distance equal to about a mile. It is then passed on to the filter basins. These are uncovered and have not so great a depth of gravel and sand as those in Hamburg, so that about two and one-half times as much water may be filtered in the same time. This serves to lessen the required space for basins.

Statistics clearly show the benefit of filtration in epidemic diseases, especially those of the typhoid type. Let us compare the death rates from typhoid diseases in cities which use filtered water with those which do not. The mortuary tables show deaths per 100,000 inhabitants:

Unfiltered.		Filtered.	
Philadelphia.....	74	London.....	17
Pittsburgh.....	127	Hamburg.....	18
Chicago, 5 years av.....	73	Berlin.....	9

BROOKLYN GARBAGE DISPOSITION.

City Works Commissioner Willis, of Brooklyn, has determined that after January next the garbage of the city must be burned. He has prepared specifications for the removal and disposition of garbage for a period of five years, beginning with January 1, 1897.

The present contract is held by the estate of the late Daniel O'Connell and costs the city \$129,000 a year. The method of collecting garbage under it, and its disposition, have been condemned by the public generally. At present it is collected in unsightly wagons and in an unsightly manner, and the refuse taken up is dumped at sea, where the first tide casts it upon the shore. Under the new specifications the wooden wagons now in use are to give way to wagons made of steel or iron, air-tight and water-tight. The wagons are to be built so that the garbage cans may be lifted into them from the street, and the present method of hurling the cans to the man on the wagon will be a thing of the past.

The most radical change inaugurated by Commissioner

Willis, however, has to do with the method of disposal of garbage. The successful contractor must guarantee to build a plant in which all the garbage taken from the city is to be cremated. At the present time in several cities such plants are in successful operation, the garbage being passed through a process by which useful oils are extracted and used for commercial purposes. These oils in their crude shape net the contractor from \$6 to \$7 a ton, and because of this Commissioner Willis hopes to secure much better terms for the city. It may possibly run from \$25,000 to \$50,000 less a year.

Each bidder shall attach to his bid a thorough and complete description of the method to be employed by him for the disposition of the garbage. It must be accompanied by plans to set forth the process to be used, the results to be procured and to refer to any patent or patents intended to be used by the contractor. The location of the plant must also be designated in the bid. No bids will be considered unless they show a system that has been in successful operation at least for three months in this country.

The vehicles in which the garbage will be transported shall be entirely new, constructed of iron or steel, or such other material as may be approved by the Commissioner of City Works and the Commissioner of Health. Each vehicle must have a capacity of at least four and one-half cubic yards, and must be of such height as to permit of garbage receptacles being emptied into it directly from the sidewalk. The vehicle must be absolutely watertight and furnished with a cover which must be air-tight, and which must be kept closed when on its way to or from the places of final disposal. Each vehicle must be cleaned daily and kept in perfect order.

GARBAGE DISPOSAL.

The agitation of the problem how to dispose of garbage in the most economical and satisfactory manner has borne fruit in the appointment of a special committee from the city council, which will visit various cities to study the methods in vogue there, and report the results of the investigations, says an editorial in the "Baltimore Herald."

Whether this is the most practical way of ascertaining what is the best method may be questioned. Men without special knowledge of the subject are hardly in a position to perceive and weigh the relative advantages of the several systems in vogue, special study being required to arrive at an intelligent comprehension of details. At the same time, however, the disposal of garbage otherwise than by dumping it in some more or less remote place has passed the stage of experiment.

Reduction or incineration plants are being successfully operated in nearly all progressive cities. Not only do they dispose of the waste material which would otherwise contaminate the soil or pollute water courses, but they make possible a considerable saving in the expense of removal. The products of incineration or reduction, unlike when offal is merely carted away and dumped, have a commercial value, which, in some instances, not only covers the cost of the processes, but leaves a margin of profit.

The principal consideration, however, is that such dis-

posal removes a grave menace to health. In Baltimore garbage is collected, loaded on scows, and carried some distance down the river to be dumped into the water. Aside from the wastefulness of the proceeding, the decomposing vegetable and animal matter helps to fill up the ship channel and becomes a menace from an hygienic standpoint.

The reduction or cremation of garbage, either under private contract or at public expense, obviates this, while the products can be sold. In either case a considerable amount is saved and the health of the people is promoted.

SAN FRANCISCO NUISANCES ABATED.

The San Francisco board of health is on the war path for nuisances in the shape of filthy rookeries. Some time ago the board condemned a number of old and filthy buildings in Chinatown and notified the owners to tear them down. This the owners refused to do, and on September 4 the board took heroic measures. About ten firemen were sworn in as deputy health inspectors to demolish the condemned buildings, and the work of demolition began immediately. A number of the filthy buildings were torn down in the face of protests from owners and tenants. Now the owners will sue the board of health for damages.

WHAT OTHERS SAY OF US.

Having received two numbers of your magazine and having examined them thoroughly, I wish to congratulate you on the same. I am, indeed, pleased with City Government, and think it should find its way, without solicitation, into every city office and into the council chamber of every incorporated town.—W. A. Woodward, councilman, Lincoln, Neb.

I have read your initial number with interest and believe that your journal will be of value not only to city officials, but to all students of municipal government.—E. F. Arthur, city treasurer, Denver.

Permit me to congratulate your company upon the very creditable magazine it has issued, entitled City Government. I believe it will be read by all with much comfort and satisfaction. The problem of municipal government is one that interests all residents of cities and incorporated villages; all are alike interested in solving these problems, of ascertaining the most economical methods of conducting municipal affairs, and at least cost to the taxpayer. The question of municipal ownership of water and lighting plants, the ownership of street railways, the best and at the same time the most economical paving to be used; these and many other questions are engrossing the attention of the thinking reliable business men of our cities. Your magazine will furnish much valuable information upon these subjects, and 'twill be the more valuable, as it will represent the actual experience in cities widely separated, and working under varied charters; I am much pleased with the publication and wish your company abundant success in your undertaking.—Daniel H. Wheeler, member of Omaha city council.